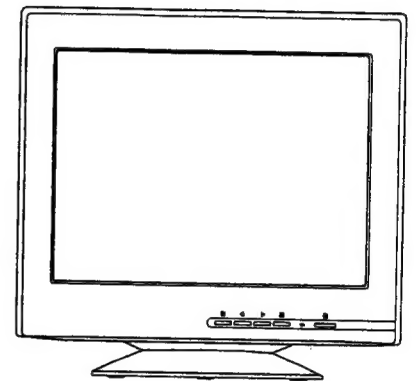# Service Manual

Multi-Scan Color CRT Display

PanaSync S110

MODEL TX-D1F63-M/-U/-SW/-E/-G

Chassis No. HV10S
Chassis Family No.21HV10S

Suffix of Each Model and Destination

-M	North America	(Power Cord:UL/CSA type	No. TSXA023 enclosed)
-U	U.K.	(Power Cord:U.K. type	No. TSX8493 enclosed)
-SW	Switzerland	(Power Cord:SEV type	No. TSX8492 enclosed)
-E	Germany	(Power Cord:VDE type	No. TSX8484 enclosed)
-G	Other Europe and Asia	(Power Cord:VDE type	No. TSX8484 enclosed)

CONTENTS

Panasonic

⚠WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1 CAUTION:

No modification of any circuit should be attempted. Service work should only be performed after you are thoroughly familiar with all of the following safety checks and servicing guide lines.

2 SAFETY CHECK

Care should be taken while servicing this CRT display because of the high voltage used in the deflection circuits. These voltages are exposed in such areas as the associated flyback and yoke circuits.

3 FIRE & SHOCK HAZARD

3-1 Insert an isolation transformer between the CRT display and AC power line before servicing the chassis.

3-2 In servicing pay attention to original lead dress especially in the high voltage circuit. If a short circuit is found, replace all parts which have been overheated as a result of the short circuit.

3-3 All the protective devices must be reinstalled per original design.

3-4 Soldering must be inspected for possible cold solder joints, frayed leads, damaged insulation, solder splashes or sharp solder points. Be certain to remove all foreign material.

4 LEAKAGE CURRENT COLD CHECK

4-1 Unplug the AC cord and connect a jumper between the two prongs on the plug.

4-2 Turn the CRT display power switch "on".

4-3 Measure the resistance value with an ohmmeter between the jumpered AC plug and each exposed metallic part on the CRT display such as the metal frame, screwheads, control shafts, etc. When the exposed metallic part has a return path to the chassis, the reading should be 1.8 megohm minimum.

5 LEAKAGE CURRENT HOT CHECK

5-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

5-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15µF capacitor between each exposed metallic part and a good earth ground (as shown in Fig.1).

5-3 Use an AC voltmeter with 1000 ohm/volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15µF capacitor.

5-4 Move the resistor connection to each exposed metallic part and measure the voltage.

5-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

5-6 Voltage measured must not exceed 7.5 volt RMS, from any exposed metallic part to ground A leakage current tester may be used in the above hot check, in which case any current measured must not exceed 5.0 milliamp. In the case of a measurement exceeding the 5.0 milliamp value, a rework is required to eliminate the chance of a shock hazard.

Note: High voltage is present when this CRT display is operating. Always discharge the anode of the picture tube to the display chassis to prevent shock hazard.
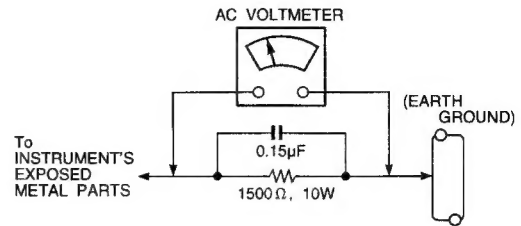

Fig.1

6 IMPLOSION PROTECTION

Picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage and scratching during installation. Use only Panasonic replacement picture tubes.

7 X-RADIATION

WARNING : The only potential source of X-Radiation is the picture tube. However when the high voltage circuitry is operating properly there is no possibility of X-Radiation problem. The basic precaution which must be exercised is to keep the high voltage at the following factory-recommended level.

Note: It is important to use an accurate periodically calibrated high voltage meter.

7-1 The procedure for adjustment high voltage is as shown on page 23.

7-2 If can not be adjust 24.5 kV at immediate service is required to prevent the possibility of premature component failure.

7-3 To prevent X-Radiation possibility it is essential to use the specified picture tube.

GENERAL INFORMATION

1. OUTLINE

This monitor is 21 inch (20.0viewable)multi-scan color CRT display with the following features.
IIC Bus Micro processor & Enhanced OSD are newly introduced, which optimize the function.

2. FEATURES

2-1 SSP-Lite LSI (Advanced Super Signal Processor) mounted

Precise wave forms are generated for the correction of each geometric distortion.

2-2 Power Saving

Built-in Power Saving function based on VESA-DPMS standard.
Power energy shall be saved by controlling the circuit in accordance with power saving signal from computer.

2-3 OSD (on screen display) function

OSD (5 languages & multi location) is new and excellent man-machine interface.
Anyone is able to set up the picture as he likes through icon & four keys in front bezel.

2-4 Self Test function

Self testing picture comes out by pushing any key in the case of no-connection with computer or power saving operation.
This function shows if monitor is alive or not and can be used for self aging test.

2-5 Ergonomic design

- Low emission design to meet MPR II & TCO'92
- ESF (Electro static field) free coating on CRT

- Tilt & swivel stand is mounted

2-6 Multi scan with digital technology

8 bit micro computer controls the circuit operation to meet with wide range signal of f_H=30~95 kHz and f_V =50~180 Hz.
So VGA, SVGA, XGA(1024x768), SXGA (1280x1024) and UXGA (1600x1200) are applicable.

2-7 1 Factory presets, (+7 Reservation), 13 user memories.

- 1 standard mode is preset at the factory.
- 7 modes are reserved at the factory.
- 13 user memories are available to set the user's own timing and display information.

2-8 Flat Face and fine dot pitch

Flat face CRT with fine dot pitch of 0.25 mm (Horizontal:0.218mm / Vertical:0.130mm)gives a crispy and comfortable sight of the screen.

### 2-9 Superior display performance

- Good focus by sophisticated gun and dynamic focus circuit
- High contrast
- Minimized distortion by digital correction circuit
- Good convergence
- Users enjoy full scan image for graphics .

2-10 Special function

- VESA DDC1/2B (Display Data Channel) compatible
- Rotation control circuit
- Multi color:9300k, 7500k & 6500k & 5000k are preset at the factory
- MOIRE Reduction circuit

SPECIFICATION

1. DIAGRAM
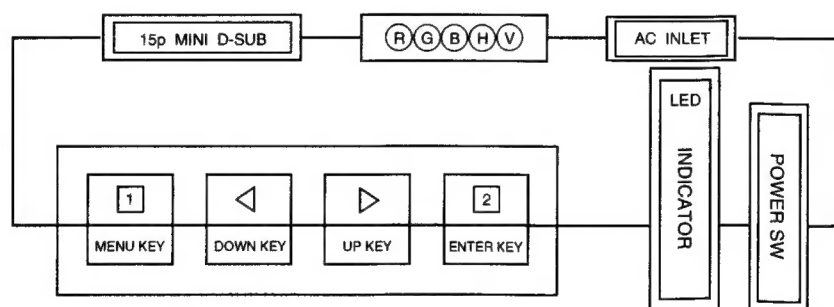
1.1 POWER SW, LED, ①-key (MENU), ◁-key (DOWN), ▷-key (UP), and ②-key (ENTER) are located on the front panel.

1.2 Signal cable and AC inlet are located on the back side of the cabinet.

1.3 OSD menu includes the following function.

CONTRAST	BRIGHTNESS	SIZE & POSITION
GEOMETRY	ROTATION	COLOR SELECT
RECALL	VIDEO INPUT LEVEL	H.MOIRE
V.MOIRE	LANGUAGE	OSD POSITION
DEGAUSS	SIGNAL	

※) CONTRAST can be directly controlled with ◁/▷-key.

※) With sync signal, OSD menu appears by pushing ①-key and ②-key.
Without sync signal, self test menu appears by pushing any key.

※) Size & Posi·········H.POSITION, H.SIZE, V.POSITION, V.SIZE

※) GEOMETRY·········V.PINCUSHION/ BALANCE, TRAPEZOID, PARALLELOGRAM

※) Video clamp pulse phase can be changed by simultaneously operation for ① and ② key .
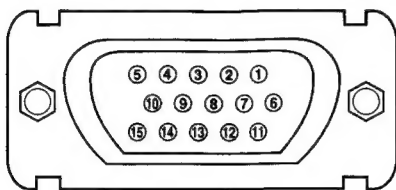
2. MECHANICAL SPECIFICATIONS

..... refer to the attached drawing

2.1 Dimension   Height : 487 mm (19.2") (typ.)
              Width : 505 mm (19.9") (typ.)
              Depth : 519 mm (20.4") (typ.)
2.2 Net Weight   : 27.5 Kg (60.5lbs) (typ.)
2.3 Maximum Viewable Phosphor Display Area:
                              : 508mm (20.0") (typ.)

3. CONNECTORS

3.1 Signal connector:
        15P Mini D-Sub 15P and BNC (R. G. B. H. V)
3.2 AC inlet: CEE 22 typed connector

<15P Mini D-Sub 15P PIN assignment>

1 ... RED   6 ... GROUND   11 ... GROUND
2 ... GREEN   7 ... GROUND   12 ... SDA (DDC)
3 ... BLUE   8 ... GROUND   13 ... H. SYNC.
4 ... GROUND   9 ... – (OPEN)   14 ... V. SYNC.
5 ... GROUND (DDC) 10 ... GROUND   15 ... SCL (DDC)

4. CRT SPECIFICATIONS

Part No.	M51KYY540X
Type	21", 90°, 29ø.in-line gun (Viewable20.0"),
Dot Pitch	Hrizontal:0.218mm/Vartical:0.130mm
Phosphor	R, G, B short persistence(Hi-Eu RED)
	Red x=0.635 typ, y=0.333 typ
	Green x=0.280 typ, y=0.595 typ
	Blue x=0.152 typ, y=0.063 typ
Bulb	DARK TINT
Face coating	NEW AGRAS COAT
Total Transmission	39.5%

5. ELECTRICAL SPECIFICATIONS

5.1 Standard conditions ... Except special items

Display image	Green, full "H" characters with a border line. (7 x 9 dots) Video signal : 100% duty Display area : 392 mm x 294 mm
Video signal level	0.7 V pp
Contrast, Brightness	Contrast : Max., Brightness : detent point
Ambient Temperature	20±5°C (68 ± 9°F)
Input Voltage	AC 120 V, 60 Hz or AC 220 V, 50 Hz
Terrestrial magnetism	Vertical field : northern hemisphere field 40µT Horizontal field : no field
Viewing direction	Parallel to the CRT axis
Measurements	After an initial warming up time of more than 30 minutes.
Ambient light	200±50 lX
Display mode	1600 x 1200 (93.75 kHz, 75.00 Hz)

5.2 POWER

5.2.1 Power supply ... Commercial power source

Input voltage	AC 90 - 132 V, AC 198 - 264 V
Power frequency	50 Hz ± 3 Hz, 60 Hz ± 3 Hz
Input current	2.7 A Max. (100 V)
Inrush current (at 20° C)	40 A op note:Cold Start
Power consumption	145 W Typ.160 W max.(AC 100V)

5.2.2 Power Management for Power Saving ...

Power saving system is designed based upon VESA DPMS standard (Version : 1.0)

1) Power consumption and recovery time.

*1 APM State	SIGNALS			MONITOR POWER CONSUMP-TION	RECOVERY TIME TO ON STATE	INDICATOR
	H. Sync	V. Sync	VIDEO			
ON	*3 NOR-MAL	*3 NOR-MAL	*2 ACTIVE	*4 100%	——	Green
STAND-BY	No Sync or *5 < 10 Hz	> 40 Hz	BLANK	< 15 W	< 4 sec.	Yellow
SUS-PEND	>10 kHz	No Sync or *5 < 10 Hz	BLANK	< 15 W	< 4 sec.	Yellow
OFF	No Sync or *5 < 10 Hz	No Sync or *5 < 10 Hz	BLANK	< 4 W	< 20sec	Yellow

  ** The transition time from ON state to each APM states is 5 seconds minimum.

  *1 : APM : Advanced Power Management.

  *2 : Measyrement Condition of power consumption for ON state :
    DISPLAY IMAGE : WHITE full "H" characters (7 × 9 dots).

  *3 : NORMAL : See "5.4 ACCEPTABLE TIMING".

  *4 : Power Consumption is measured at AC 100-240V. (Note:3w Typ. at AC 230V/50Hz)

  *5 : Power saving operation is done at least less than specified value in the list.

5.3 Standard timing (Standard mode)

- Following 1 mode is preset in the memory as standard timing at the factory and 7 modes are reserved.
- Fig-1 shows a definition of timing and signal level.
- Electrical performance is specified This SPECIFICATION is specified at STD (1600 x 1200) mode unless otherwise mentioned.

TIMING CHART

A	Period
B	Blanking
C	Sync Width
D	Back Porch
E	Active
F	Front Potch

Fig.1
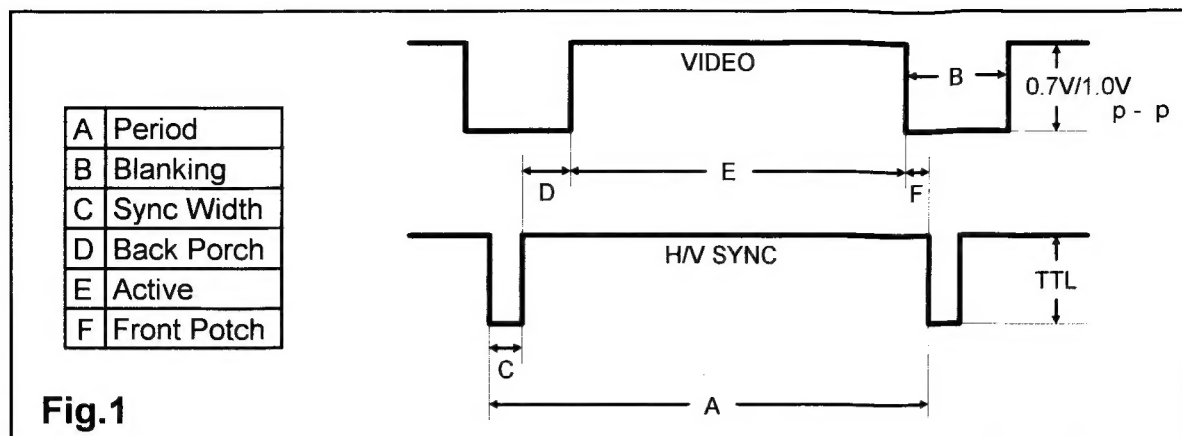
		PRESET	RESERVATION	RESERVATION
		MODE - 1	MODE - 2	MODE - 3
		1600 × 1200 (75)	640 × 480 (60)	800 × 600 (75)
	DOT CLOCK	202.5000 MHz	25.1750 MHz	49.5000 MHz
	f H	93.7500 kHz	31.4688 kHz	46.8750 kHz
H	A - PERIOD	10.667 µs (2,160 dots)	31.778 µs (800 dots)	21.333 µs (1,056 dots)
	B - BLANKING TIME	2.765 µs (560 dots)	6.356 µs (160 dots)	5.172 µs (256 dots)
	C - SYNC WIDTH	0.948 µs (192 dots)	3.813 µs (96 dots)	1.616 µs (80 dots)
	D - BACK PORCH	1.501 µs (304 dots)	1.946 µs (49 dots)	3.232 µs (160 dots)
	E - ACTIVE TIME	7.901 µs (1,600 dots)	25.422 µs (640 dots)	16.162 µs (800 dots)
	F - FRONT PORCH	0.316 µs (64 dots)	0.596 µs (15 dots)	0.323 µs (16 dots)
	f V	75.0000 Hz	59.9405 Hz	75.0000 Hz
V	A - PERIOD	13.333 ms (1,250 lines)	16.683 ms (525 lines)	13.333 ms (625 lines)
	B - BLANKING TIME	0.533 ms (50 lines)	1.430 ms (45 lines)	0.533 ms (25 lines)
	C - SYNC WIDTH	0.032 ms (3 lines)	0.064 ms (2 lines)	0.064 ms (3 lines)
	D - BACK PORCH	0.491 ms (46 lines)	1.176 ms (37 lines)	0.448 ms (21 lines)
	E - ACTIVE TIME	12.800 ms (1,200 lines)	15.253 ms (480 lines)	12.800 ms (600 lines)
	F - FRONT PORCH	0.011 ms (1 lines)	0.191 ms (6 lines)	0.021 ms (1 lines)
	SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Positive / Positive

		RESERVATION	RESERVATION	RESERVATION
		MODE - 4	MODE - 5	MODE - 6
		1024 × 768 (75)	MAC 1152 × 870 (75)	1280 × 1024 (60)
	DOT CLOCK	78.7500 MHz	100.0000 MHz	108.5000 MHz
	f H	60.0229 kHz	68.6813 kHz	63.9741 kHz
H	A - PERIOD	16.660 µs (1,312 dots)	14.560 µs (1,456 dots)	15.631 µs (1,696 dots)
	B - BLANKING TIME	3.657 µs (288 dots)	3.040 µs (304 dots)	3.834 µs (416 dots)
	C - SYNC WIDTH	1.219 µs (96 dots)	1.280 µs (128 dots)	1.180 µs (128 dots)
	D - BACK PORCH	2.235 µs (176 dots)	1.440 µs (144 dots)	2.065 µs (224 dots)
	E - ACTIVE TIME	13.003 µs (1,024 dots)	11.520 µs (1,152 dots)	11.797 µs (1,280 dots)
	F - FRONT PORCH	0.203 µs (16 dots)	0.320 µs (32 dots)	0.590 µs (64 dots)
	f V	75.0286 Hz	75.0616 Hz	60.0132 Hz
V	A - PERIOD	13.328 ms (800 lines)	13.322 ms (915 lines)	16.663 ms (1,066 lines)
	B - BLANKING TIME	0.533 ms (32 lines)	0.655 ms (45 lines)	0.657 ms (42 lines)
	C - SYNC WIDTH	0.050 ms (3 lines)	0.044 ms (3 lines)	0.047 ms (3 lines)
	D - BACK PORCH	0.466 ms (28 lines)	0.568 ms (39 lines)	0.594 ms (38 lines)
	E - ACTIVE TIME	12.795 ms (768 lines)	12.667 ms (870 lines)	16.006 ms (1,024 lines)
	F - FRONT PORCH	0.017 ms (1 lines)	0.044 ms (3 lines)	0.016 ms (1 lines)
	SYNC POLARITY(H/V)	Positive / Positive	Negative / Negative	Positive / Positive

		MODE - 7		MODE - 8	
		1280 × 1024 (75)		1600 × 1200 (70)	
	DOT CLOCK	135.0000	MHz	189.0000	MHz
	f H	79.9763	kHz	87.5000	kHz
H	A - PERIOD	12.504 µs	(1,688 dots)	11.429 µs	(2,160 dots)
	B - BLANKING TIME	3.022 µs	(408 dots)	2.963 µs	(560 dots)
	C - SYNC WIDTH	1.067 µs	(144 dots)	1.016 µs	(192 dots)
	D - BACK PORCH	1.837 µs	(248 dots)	1.608 µs	(304 dots)
	E - ACTIVE TIME	9.481 µs	(1,280 dots)	8.466 µs	(1,600 dots)
	F - FRONT PORCH	0.119 µs	(16 dots)	0.339 µs	(64 dots)
	f V	75.0247	Hz	70.0000	Hz
V	A - PERIOD	13.329 ms	(1,066 lines)	14.286 ms	(1,250 lines)
	B - BLANKING TIME	0.525 ms	(42 lines)	0.571 ms	(50 lines)
	C - SYNC WIDTH	0.038 ms	(3 lines)	0.034 ms	(3 lines)
	D - BACK PORCH	0.475 ms	(38 lines)	0.526 ms	(46 lines)
	E - ACTIVE TIME	12.804 ms	(1,024 lines)	13.714 ms	(1,200 lines)
	F - FRONT PORCH	0.013 ms	(1 lines)	0.011 ms	(1 lines)
	SYNC POLARITY(H/V)	Positive / Positive		Positive / Positive	

ADJUSTMENT   ADJUSTMENT   ADJUSTMENT

		HV10S - 1		HV10S - 2		HV10S - 3	
	DOT CLOCK	22.5900	MHz	91.6240	MHz	160.6320	MHz
	f H	29.1108	KHz	52.1777	KHz	75.2022	KHz
H	A - PERIOD	34.351 µs	(776 dots)	19.165 µs	(1,756 dots)	13.297 µs	(2,136 dots)
	B - BLANKING TIME	6.906 µs	(156 dots)	4.235 µs	(388 dots)	3.187 µs	(512 dots)
	C - SYNC WIDTH	3.320 µs	(75 dots)	1.746 µs	(160 dots)	1.145 µs	(184 dots)
	D - BACK PORCH	2.258 µs	(51 dots)	1.768 µs	(162 dots)	1.544 µs	(248 dots)
	E - ACTIVE TIME	27.446 µs	(620 dots)	14.931 µs	(1,368 dots)	10.110 µs	(1,624 dots)
	F - FRONT PORCH	1.328 µs	(30 dots)	0.720 µs	(66 dots)	0.498 µs	(80 dots)
	f V	47.4891	Hz	92.3499	Hz	137.2304	Hz
V	A - PERIOD	21.057 ms	(613 lines)	10.828 ms	(565 lines)	7.287 ms	(548 lines)
	B - BLANKING TIME	0.927 ms	(27 lines)	0.556 ms	(29 lines)	0.426 ms	(32 lines)
	C - SYNC WIDTH	0.103 ms	(3 lines)	0.057 ms	(3 lines)	0.040 ms	(3 lines)
	D - BACK PORCH	0.721 ms	(21 lines)	0.479 ms	(25 lines)	0.372 ms	(28 lines)
	E - ACTIVE TIME	20.130 ms	(586 lines)	10.273 ms	(536 lines)	6.861 ms	(516 lines)
	F - FRONT PORCH	0.103 ms	(3 lines)	0.019 ms	(1 lines)	0.013 ms	(1 lines)
	SYNC POLARITY(H/V)	Negative / Negative		Negative / Negative		Negative / Negative	

ADJUSTMENT

		HV10S - 4	
	DOT CLOCK	230.1100	MHz
	f H	96.5227	KHz
H	A - PERIOD	10.360 µs	(2,384 dots)
	B - BLANKING TIME	2.694 µs	(620 dots)
	C - SYNC WIDTH	0.834 µs	(192 dots)
	D - BACK PORCH	1.495 µs	(344 dots)
	E - ACTIVE TIME	7.666 µs	(1,764 dots)
	F - FRONT PORCH	0.365 µs	(84 dots)
	f V	182.1182	Hz
V	A - PERIOD	5.491 ms	(530 lines)
	B - BLANKING TIME	0.363 ms	(35 lines)
	C - SYNC WIDTH	0.031 ms	(3 lines)
	D - BACK PORCH	0.321 ms	(31 lines)
	E - ACTIVE TIME	5.128 ms	(495 lines)
	F - FRONT PORCH	0.010 ms	(1 lines)
	SYNC POLARITY(H/V)	Negative / Negative	

5.4 Acceptable timing

- If your timing is within following specification, this CRT display can automatically function with a certain size and position.

Horizontal: Sync frequency: 30.0 ~ 95.0 kHz
Blanking Time: $\geq$ 2.7 μs
Back Porch: $\geq$ 1.25 μs
Front Porch: $\leq$ Back Porch
Sync Width : 0.948 ~ 4.0μs(f_H<50KHz)
0.948 ~ 2.5μs(f_H>50KHz)

Vertical: Sync frequency: 50.0 ~ 180.0 Hz
Blanking Time: $\geq$ 0.5 ms
Back Porch: $\geq$ 0.4 ms
Sync Width: $\geq$ 0.032 ms

- Several items like size, position and distortion can be adjusted through OSD menu, and if you want to keep it, please push the key ① for memory, or keep the key untouched for about 20 seconds, it is automatically memorized.

    NOTE : In case of RECALL, the key is untouched for about 30 seconds, RECALL function will be cancelled.

  Please note, however, that there is the case you can not get the size and/or position you want, (for example, in case Display video Time is too short, you can't get bigger size of the image.)

- The CRT adopted in this CRT display is designed to minimize the moire phenomenon at suitable size for typical display modes. However, there might be a display format among many formats, in which the moire phenomenon appears on this display.

5.5 Signal level and input impedance

5.5.1 Video Signal level

- This CRT display is adjusted at the factory using 0.7Vpp Video Signal. Black level is 0 V.
- This CRT display is compatible with 1.0Vpp Video signal by using Video input level selection.

5.5.2 Sync Signal level

- H/V Separate, H/V Mixed : TTL level
- Sync on Green : 0.3 V p-p ±0.015V

5.5.3 Input impedance

- Video input: 75 Ω
- Sync input: $\geq$ 1 kΩ

5.6 Display performance

5.6.1 Display area

1) PRESET TIMING
    MODE 1,1600×1200 @75Hz
    WIDTH : 392 mm ± 5 mm
    HEIGHT : 294 mm ± 5 mm
2) RESERVATION TIMING
    MODE 2, 640× 480 @60Hz
    WIDTH : 392 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 3, 800× 600 @75Hz
    WIDTH : 392 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 4,1024× 768 @75Hz
    WIDTH : 392 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 5,1152× 870 @75Hz
    WIDTH : 392 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 6,1280×1024 @60Hz
    WIDTH : 368 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 7,1280×1024 @75Hz
    WIDTH : 368 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
    MODE 8,1600×1200 @70Hz
    WIDTH : 392 mm ± 7 mm
    HEIGHT : 294 mm ± 7 mm
3) FULL SCAN
    WIDTH : 406 mm
    HEIGHT : 304 mm

5.6.2 Centering

1) PRESET TIMING (MODE1)
    IA – BI $\leq$ 4 mm
    IC – DI $\leq$ 4 mm
2) RESERVATION TIMING (MODE2~8)
    IA – BI $\leq$ 7 mm
    IC – DI $\leq$ 7 mm
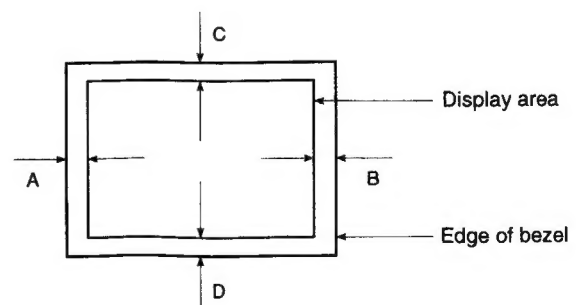
5.6.3 Distortion
Inside 2.2 mm Freme
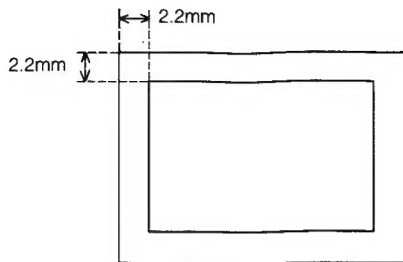
5.6.4 Rotation
|H1 – H2| ≤ 2.5 mm
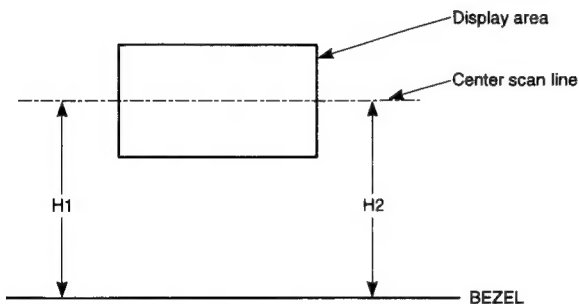
5.6.5 Linearity
Horizontal linearity

$$= \frac{X\,max. - X\,min.}{X\,max. + X\,min.} \times 100\% \le 7\%$$

Vertical linearity

$$= \frac{Y\,max. - Y\,min.}{Y\,max. + Y\,min.} \times 100\% \le 6\%$$
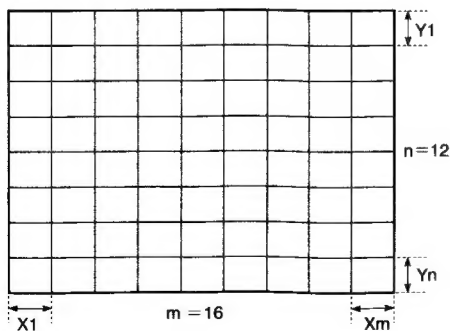
<Conditions>
Display image ------- crosshatch pattern
Maximum and minimum values should not be adjacent to each other.

X max. is maximum value among X1~Xm
X min. is minimum value among X1~Xm

Y max. is maximum value among Y1~Yn
Y min. is minimum value among Y1~Yn

5.7 General performance
5.7.1 Maximum Pixel Clock
202.5 MHz (Typ.)

5.7.2 Maximum luminance

Value	95 cd/m² (Typ.) for 5% white field at the center of the display area. 85 cd/m² (Typ.) for 100% white field at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Max. (Contrast : Max.) (Brightness :CENTER point)

5.7.3 Minimum luminance

Value	≤ 17 cd/m² at the center of the display area. Specified by 9300 K + 8 MPCD
Conditions	Display image : White full flat field Luminance : Min. (Contrast : Min.) (Brightness : CENTER point)

5.7.4 Brightness variation

Value	75 % (Min.) Variation = C/A X 100
Conditions	Display image : White full flat field Luminance : MAX (Contrast : MAX) (Brightness : Center point) A ; Luminance at center position C ; Luminance at position of lowest brightness

5.7.5 Display area regulation

	Display area variation	Range of variation
Due to Luminance	within 1.0 %	17~95 cd/m² (white flat field)
Due to Power Supply	within 0.5 %	AC : 90 - 132 V or 198 - 264 V
Due to Temperature	within 1.5 %	20° C ± 20° C

5.7.6 Color Point

< Conditions >
Display image : White flat field at the center of
the display area.
Luminance   : Brightness Center point.

Contrast	max	min
Value	9300 K + 8 MPCD x = 0.283 ± 0.020 y = 0.298 ± 0.020	9300 K + 8 MPCD x = 0.283 ± 0.020 y = 0.298 ± 0.020

< Conditions >
Display image : 5% White flat field at the center of
the display area.
Luminance   : Brightness Center point ,
Contrast max

Contrast	7500K	6500K	5000K
Value	x = 0.300(Typ.) y = 0.315(Typ.)	x = 0.313(Typ.) y = 0.329(Typ.)	x = 0.346(Typ.) y = 0.359(Typ.)

5.7.7 Misconvergence

Center area of display   (A) : 0.3 mm (Max.)
Corner area of display   (B) : 0.4 mm (Max.)
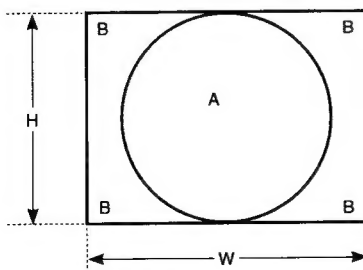
<Conditions>
Display image   : Crosshatch pattern mixed
with R, G and B colors.
Convergence gauge :   KLEIN CM7AG or equiva-
lent.
Display area   :   W x H   392 x 294 mm

5.7.8 White Uniformity

xa – xc ≤ ± 0.015
xa : x coordinate at the CRT center
xc : x coordinate at any other point
ya – yc ≤ ± 0.015
ya : y coordinate at the CRT center
ya : y coordinate at any other point

<Conditions>
Display image : White flat field
Luminance   : 95 cd/m² at the center of
display area
Display area   : 392 x 294 mm

5.7.9 Purity

Conspicuous mislanding shall not be visible
within display area at a distance of 60cm from
CRT surface.

<Conditions>
Display image : Red/Green/Blue flat field
Luminance   : Contrast max,
Brightness CENTER
Display area   : 392 x 294 mm

5.7.10 Jitters

Invisible at a distance of 60 cm from CRT surface.

6. ENVIRONMENTS

6.1 Ambient temperature, humidity and altitude

	Operating	Storage and shipment
Temperature	0 ~ 40° C (32 ~ 104° F)	–20 ~ +60° C (–4 ~ 140° F)
Humidity	5 ~ 90 % *	5 ~ 90 % *
Altitude	3,000 m (Max.) (10,000 ft)	12,000 m (Max.) (40,000 ft)

* Non-condensation

6.2 Vibration and shock

6.2.1 Vibration

	Order of tests	Direction of vibration		Acceleration		Frequency	Sweep	Test time
				Non-operation	Storage and shipment			
Unpacked	1	Vertical	Up to down	2.9 m/s² (0.3 G)		5 - 55 Hz	120 s	30 min.
	2	Horizontal	Front to back					15 min.
	3		Right to left					
Packed	1	Vertical	Up to down		10m/s² (1.0 G)	5 - 50 Hz	810s (Logsweep)	40 min.
	2	Horizontal	Front to back		5m/s² (0.5 G)			20 min.
	3		Right to left					

6.2.2 Shock (Drop test)

Unpacked	20 G One time for each face (6 faces) (non-operation)			
Packed	Order of drop	Face to drop is to face the floor. (See the figure)	Height	Number of drop
	1	A, B, C, D, E, F, G, H, I	31 cm	1 time for each
	2	J	50 cm	

g (top), h(right), f (back), c (edge), e (front), a (corner), i (left), d (edge), b (edge), j (bottom)

407. 5

305. 5

505

ROTATION
180°

519

487

210.5

231

TILT
UP
13°

TILT
DOWN
4°

φ300

174
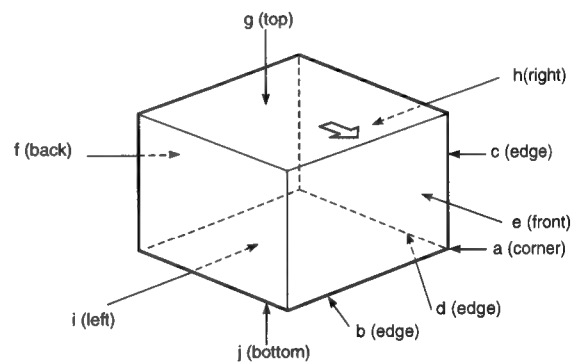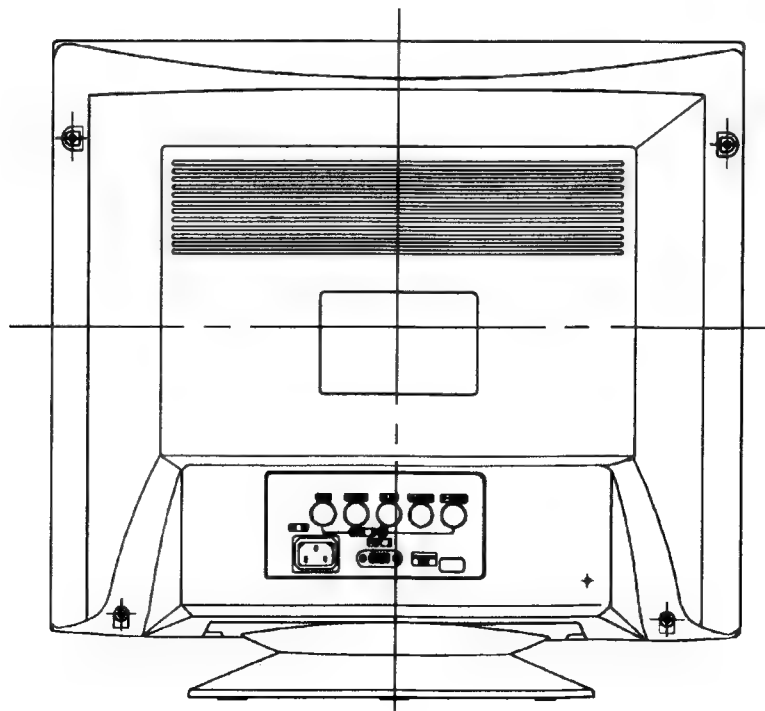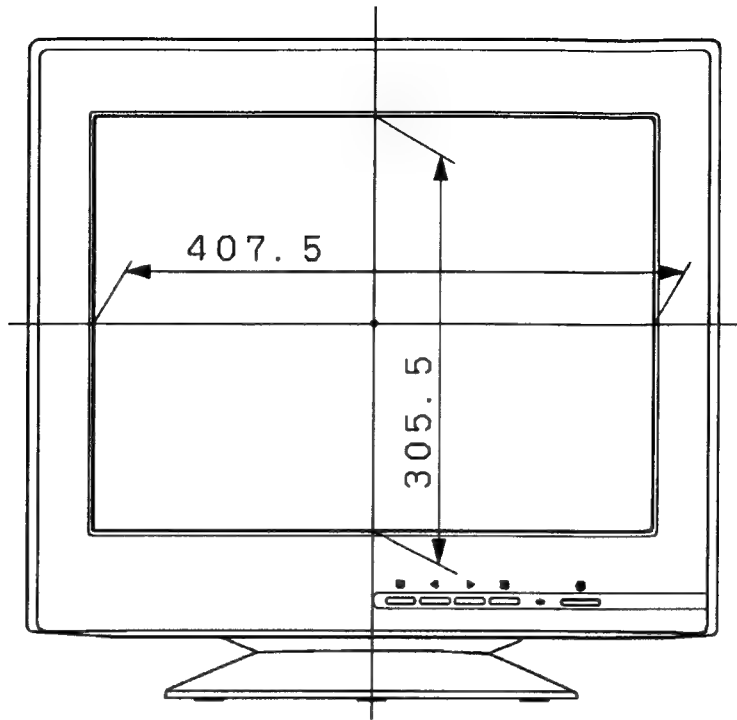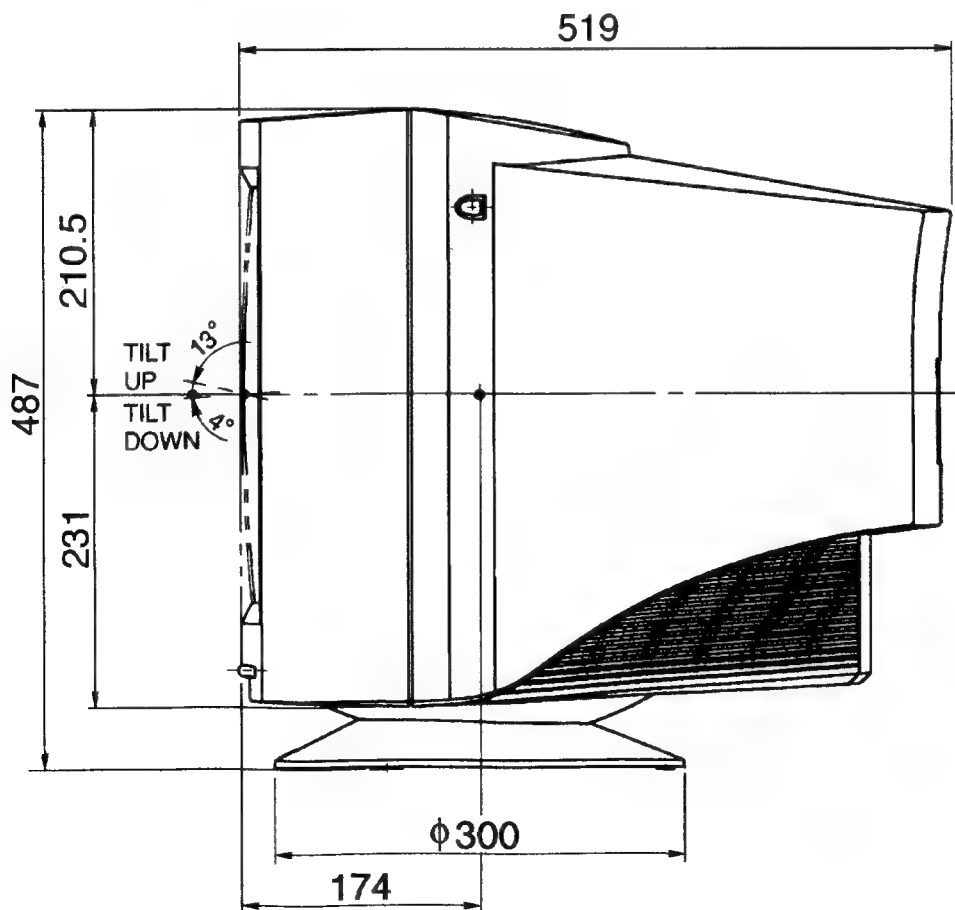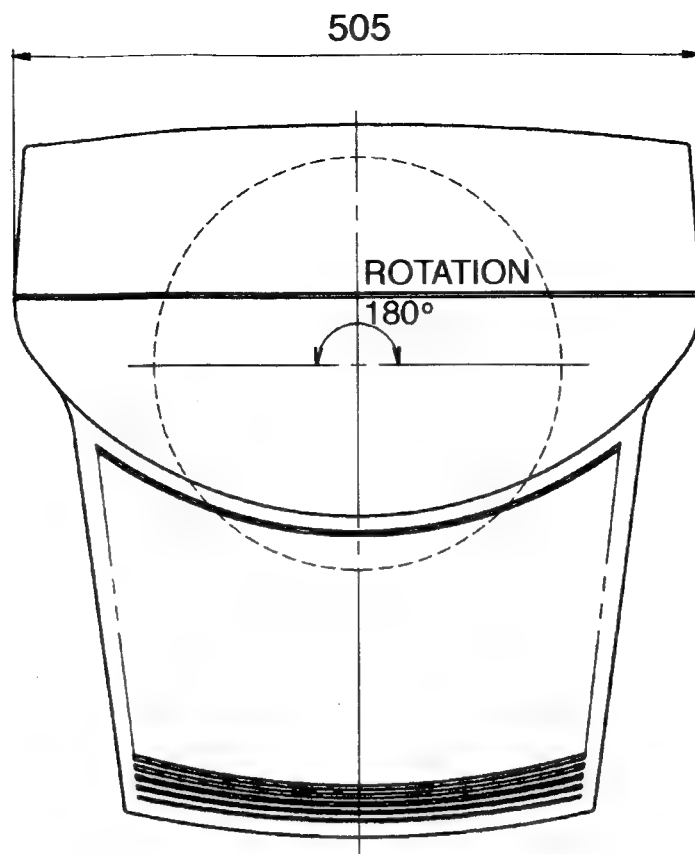
DISASSEMBLY INSTRUCTIONS

1. Rear cover removal

Note: Spread a mat underneath to avoid damaging the CRT surface.

1) Remove four large screws ① and small screw ② from the rear cover.
2) Remove the cover.
3) Remove nine screws ③ from the shield case.
4) Remove the shield case.
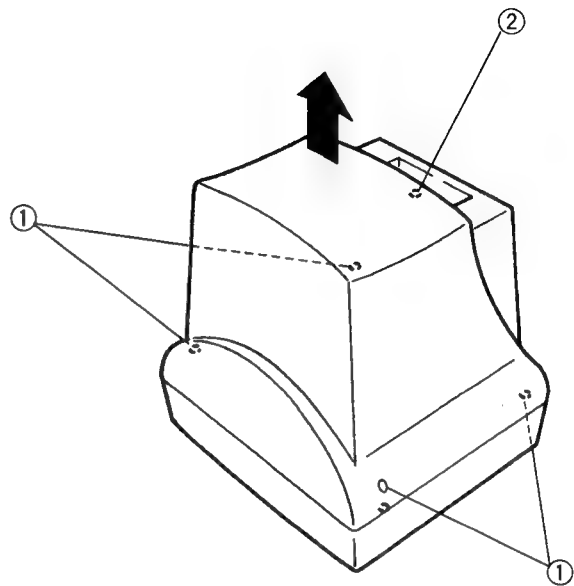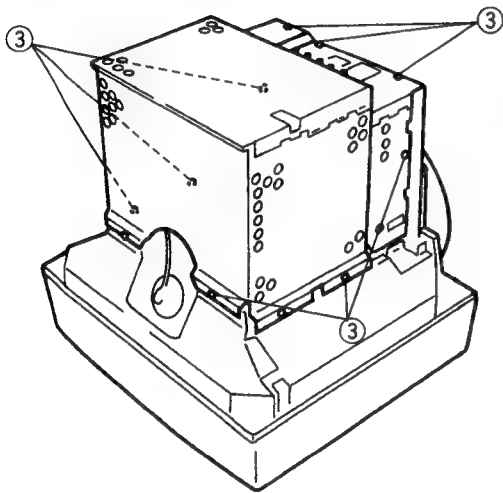
2. Video PCB removal

1) Remove four screws ④ securing the shield cover.
2) Desolder (B) and Remove the shield cover (A).

(A)

(B)
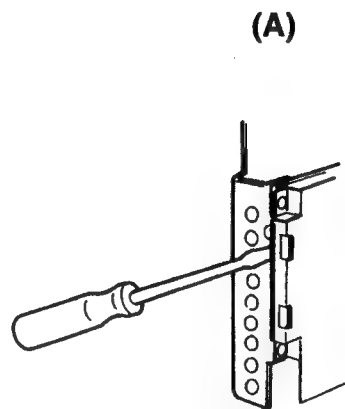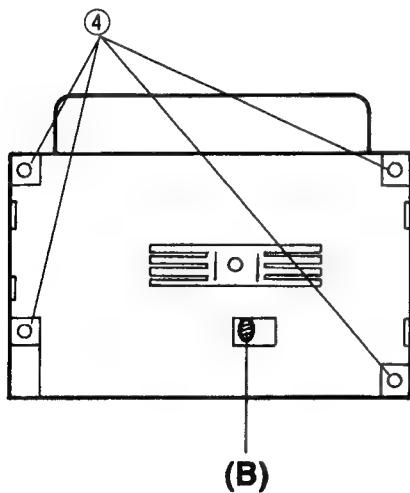
3) Loosen the screw ⑤ securing the CRT neck and the shield case.
4) Remove the PCB block from the CRT.
5) Remove the N1006 connector ⑥.
6) Remove two focus leads ⑦.
7) Remove ground connector ⑧ (N1005) connected to the PCB.
8) Remove N1007 connector ⑨.
9) Remove N100B connector ⑩.
10) Remove RGB connector ⑪.
11) Remove the PCB from the shield case.
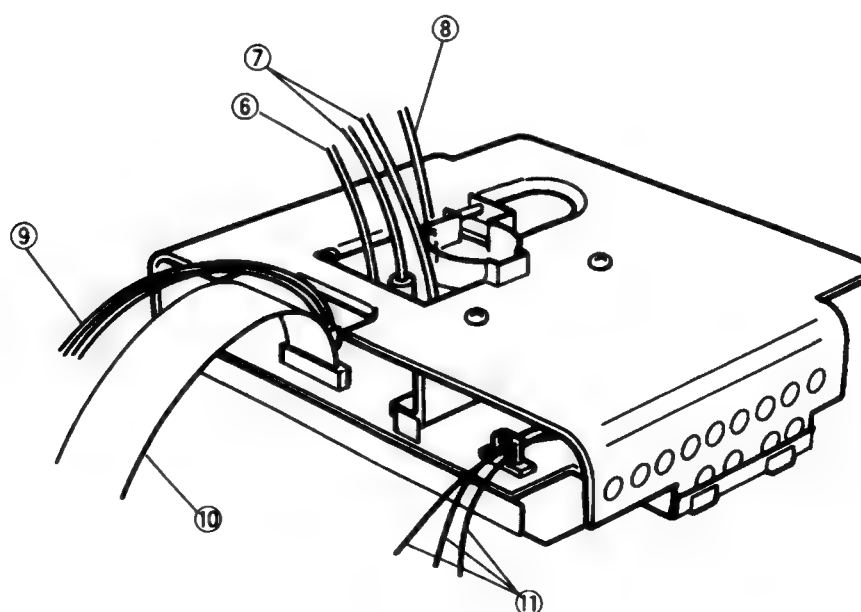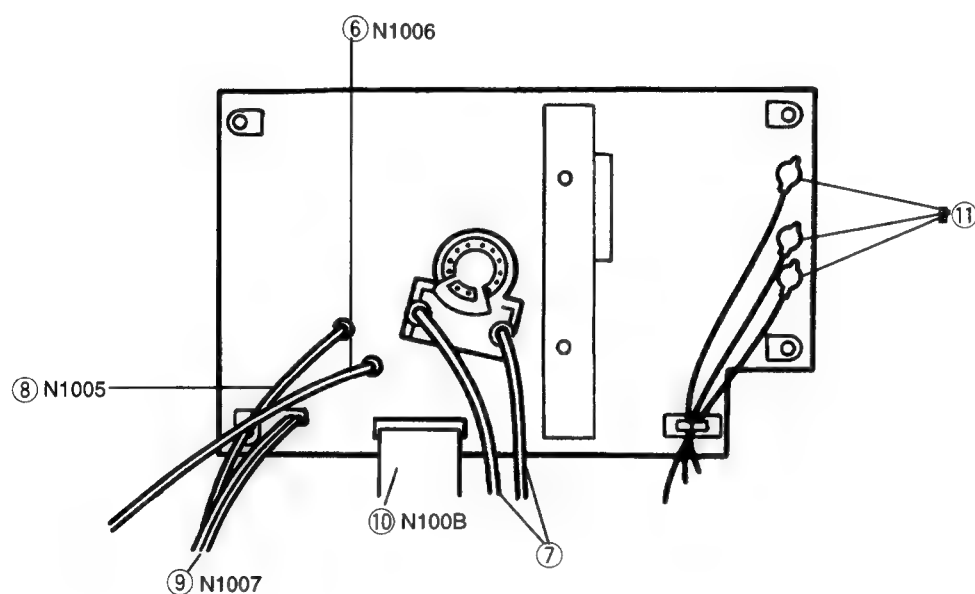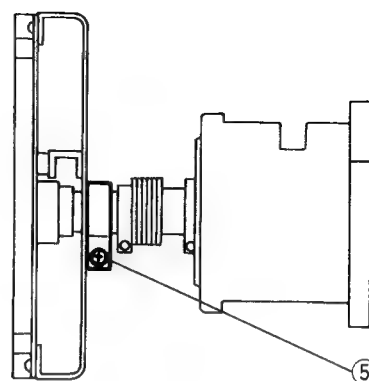
3. Main PCB Removal

1) Remove the connector ⑫ (N901) of the degauss coil.
2) Remove the DY connector ⑬.
3) Remove the anode cap.
4) Move the CRT face down and remove two screws ⑮ securing the bottom fitting metal.
5) Remove the fitting metal and the PCB from the cabinet. (C)
6) Remove thirteen screws ⑯ securing the fitting metal and PCB.
7) Remove screws ⑰ securing the fitting metal and PCB.
8) Remove four screwsthe ⑱ securing the fitting metal and PCB.
9) Remove two clamper ⑲ the fitting metal and PCB.
10) Remove the PCB with the figure referenced.

(C)
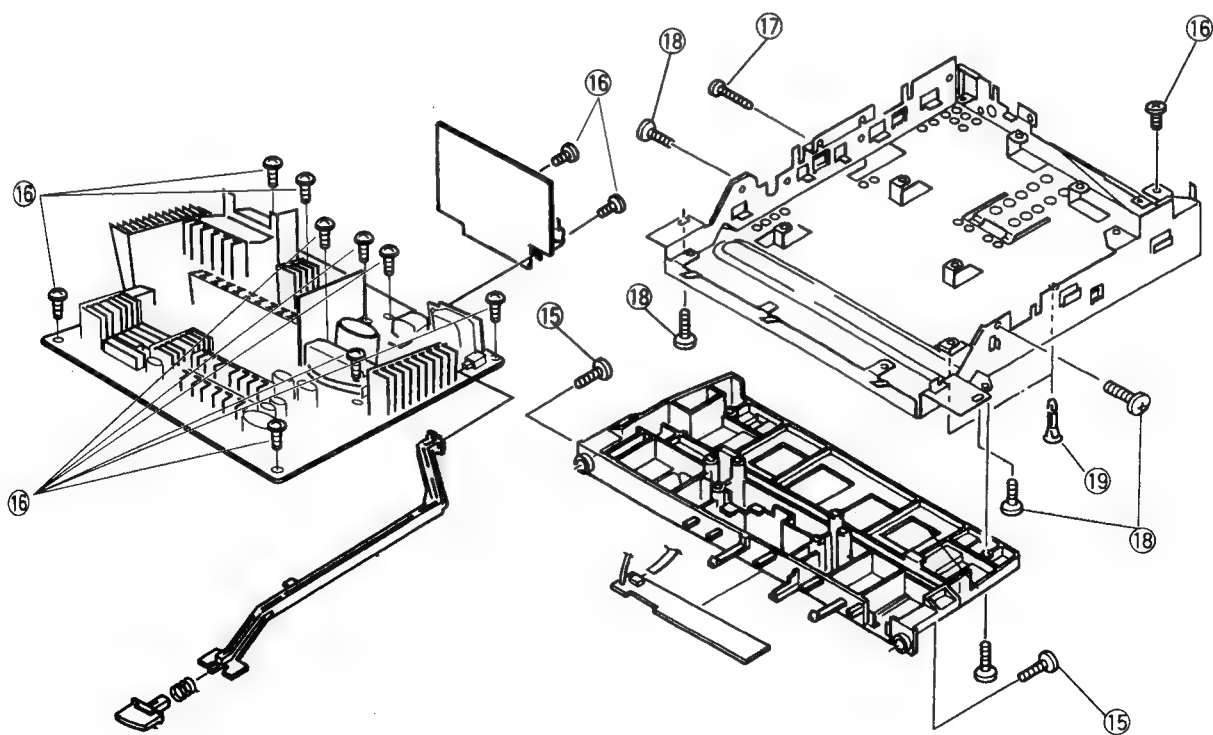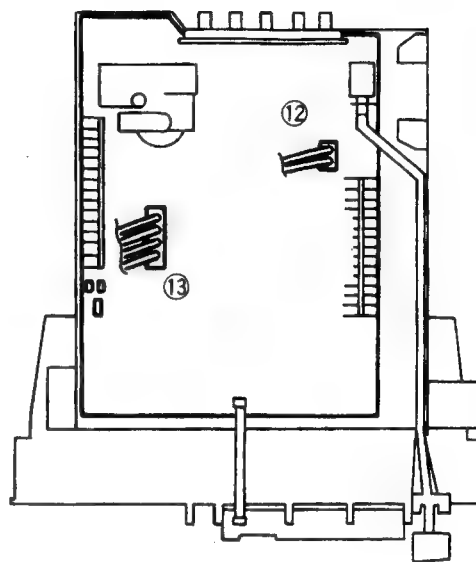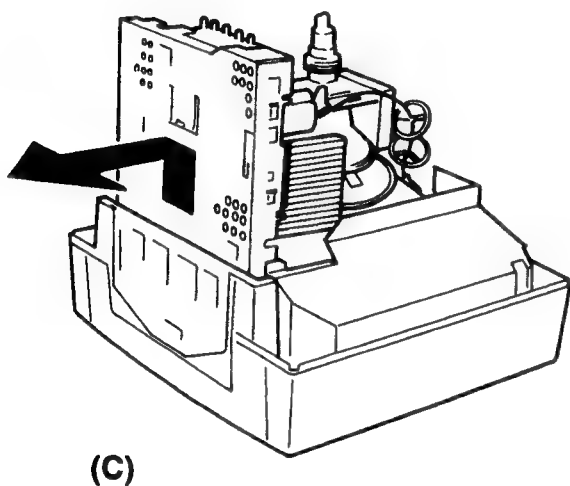
CONTROL LOCATION

【Basic operation】

Control panel

| ☐1 | ◁ | ▷ | ☐2 | ① |

Names of control

| ☐1 key or Exit key Save key | Left key | Right key | ☐2 key | Power Indicator | Power switch |

Functions

(1) To display contrast menu; to adjust contrast.
(2) To scroll through menu item.
(3) To adjust level of selected item.

Lights when power switch is pressed· goes out when it is pressed again. Operation / Display of the Power Management Function.

To display main menu: quit main menu. *Store change data in the memory.

To select the menu item. To display submenu of selected item.

To turn monitor on and off.

- For a detailed description of the functions of the ☐1 key, left key, right key, and ☐2 key.
  * Since contrast is the most commonly adjusted parameter, we have provided direct access to this menu item.

Adjustments

Self-Test menu(No Signal screen

This display indicates that the monitor is operating normally.When one of the following conditions occurs,press one of the 4 operation keys to call the appropriate display.

```
No Signal
fH --.--kHz
fV --.-- Hz
Port 🖵 ⊙
```
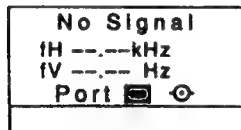
No signal (The computer is not connected or the mains power to the computer is disconnected)

```
Error
fH 98.0kHz
fV 80.0 Hz
Port 🖵 ⊙
```
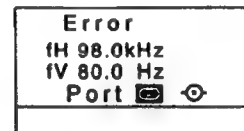
The horizontal sync. signal are outside of the permitted range (the value of the horizontalsync. signal will be displayed in red and the value of the vertical sync. signal will be displayed in white)

Select menu

The adjusted items are represented by icons.
When the key is pressed,the menu screen appears.
Use the or keys to move the cursor to the item to be adjusted,then press the kye to call the adjustment menu.

◑	☼	▣	▱
t▢	🞔	◈	🔀
⩊	🔀	?⟨	▤
∏	⊞		
Contrast			
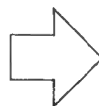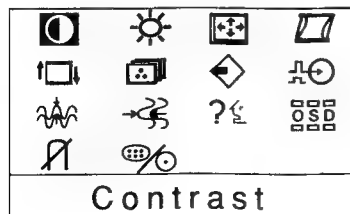
◑	Contrast Adjustment
☼	Brightness Adjustment
▣	Size & Position adjustment
▭	H.Position
▤	H.Size
▭	V.Position
▭	V.Size
▱	Geometry adjustment
▭	V.pincushion
⊐	Side Pin. Bal.
△	Trapezoid
▱	Parallelogram
t▢	Rotation
🞔	Color temp
◈	Recall
🔀	Video input level
⩊	H. Moire reduction
🔀	V. Moire reduction
?⟨	Language
	OSD screen position
∏	Degauss
⊞	Input select

CAUTION FOR ADJUSTMENT AND REPAIR

1. Degaussing is inevitably required at purity adjustment or convergence adjustment.
2. If you check or adjust electrical specification or function, more than 20 minutes burn-in is required.
3. Reforming of the lead wire is required after your repair work.
4. Prior to starting work, be sure to check that the input signal is at the specified timing and that the polarity is as specified in all modes.
5. Brightness control: After mounting the rear cover, brightness tends to decrease about 5 cd/m² on a flat white field and about 1 cm/m² on a white raster field. This should be taken into consideration.

6. Brightness stabilizing time: It takes about 20 to 50 seconds for the brightness to stabilize after turning the power off for 5 seconds (AC). Therefore, care should be taken to this.
7. Aging should be made in white raster of 30 ~ 50 cd/m² and raster size, 402 x 301 mm before adjusting the ITC.
8. Set the CONTRAST to MAX and BRIGHTNESS to CENTER using the O.S.D.

CAUTION FOR SERVICING

When servicing or replacing the CRT, high voltage sometimes remains on the anode. So, completely discharge high voltage before servicing or replacing the CRT so as to prevent a shock to the service person.

CRT Anode Discharge
1. When you check the CRT anode or replace the CRT, discharge the CRT anode to the external conductive coating (aquadag) of CRT, especially when checked right after power turn-off.
2. Ground one end of a jumper wire which has a resistor (30 kV < resisting pressure 100 MΩ) and connect the other point to the CRT anode.

Note: Grounding must be done first.

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may be hit by an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.
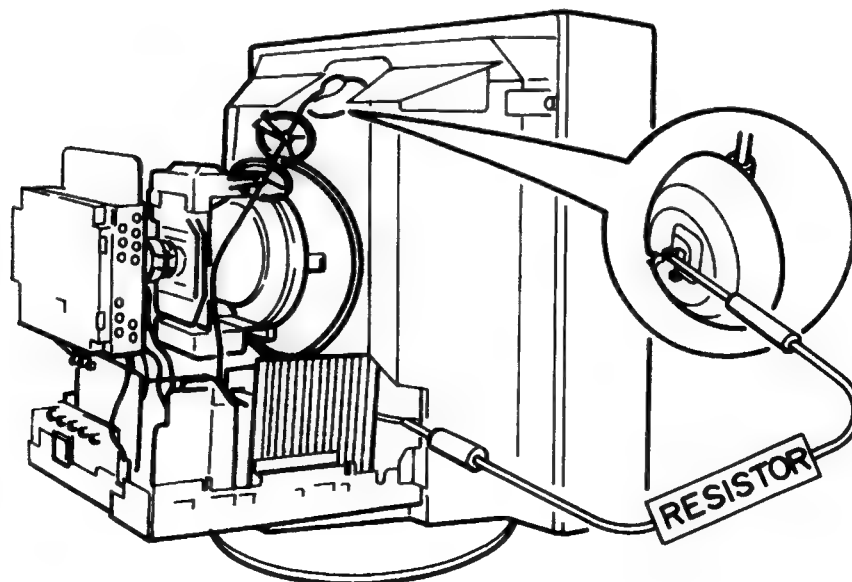
INTRODUCTION

- This monitor is controlled by a microcomputer. With the exception of purity/convergence/focus all is digitally adjusted.

  Therefore a computer, the dedicated control software, the dedicated interface, a 9~12 V power supply, and a signal generator are required servicing.

TOOLS REQUIRED

- **Computer**

  The control software is IBM PC compatible only. Therefore, it is not compatible with any other operating systems. For further information please contact **our sales office.**

- **Control Software**

  The HV10S chassis can only use adjustment program disk" for this model. No other program can access the EEPROM on the monitor. For further information please contact **our sales office.**

- **Interface**

  The interface is dedicated to work only with the control software and the HV chassis. There are no substitutes for this interface. For further information please contact **our sales office.**

- **Power Supply**

  A DC 9~12 V (+9~12 V/-9~12 V) power supply is required for operating the interface.

- **Signal Generator**

  It is necessary for you to use a signal generator which operates on fH 95 kHz, fv 180 Hz, and fc 158 MHz bands.

INTERFACE CONNECTION
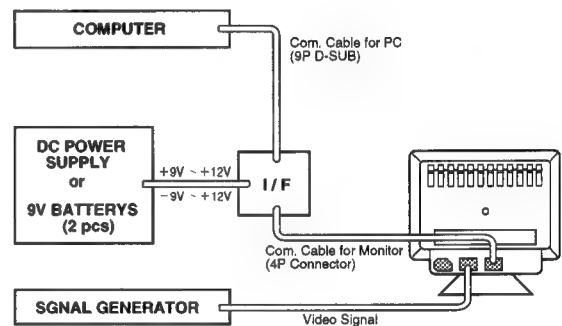
INTERFACE SCHEMATIC DIAGRAM

4P (MONITOR SIDE)

① GND	
② CLK	
③ SO	
④ SI	

9P D-SUB (PC SIDE)

⑤ GND	
⑥ DATA SET READY	
⑦ REQUEST TO SEND	
⑧ CLEAR TO SEND	
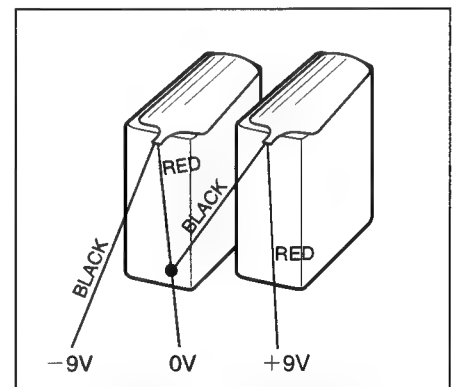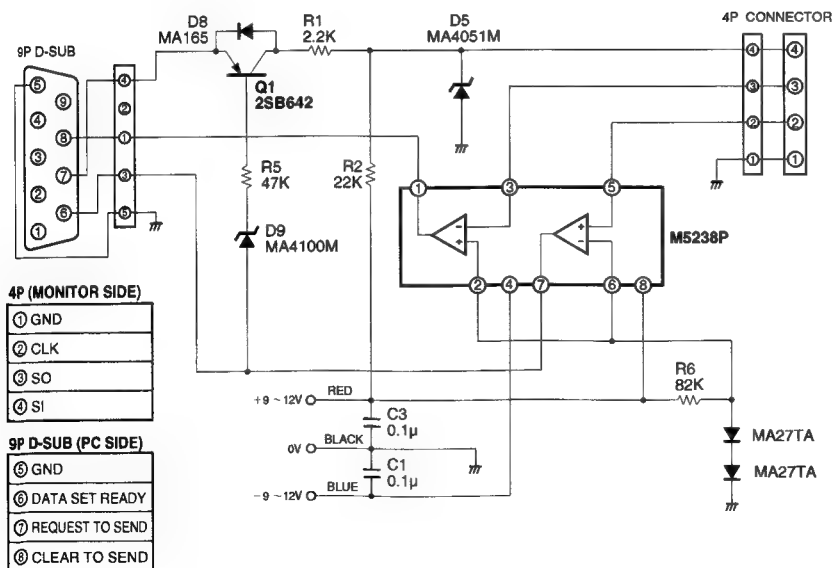
BATTERY CONNECTION

OTHER TOOLS

- Oscilloscope (dual trace)
- Scope probe – Attenuation: 100:1
  Attenuation: 10:1
- Digital Voltmeter – Range: 0 to 1000 V DC
  Accuracy: 0.1 %
- TV color Analyzer II – that reads luminance and chromaticity X and Y coordinates.
- High Voltag Probe
- AC power supply – Output voltage : 0 to 300 V
- Degaussing coil
- Convergence meter
- Scale
- Microscope – Scale factor: 50

STANDARD CONDITION OF ADJUSTMENT PROCEDURE

- Signal timing : Preset timing
- Display pattern : White, full "H" character
- Signal level : V/H: TTL level video: 700 mV
- Input source : AC 100~240 V, 50/60 Hz
- Ambient temperature : Room temperature
- Warm-up time : More than 30 minutes
- Brightness control : Center
- Contrast control : Max.
- Magnetic field : Vertical: 40 μT
  Horizontal: 0 μT
- Signal cable : Attached

Video input signal from PC.
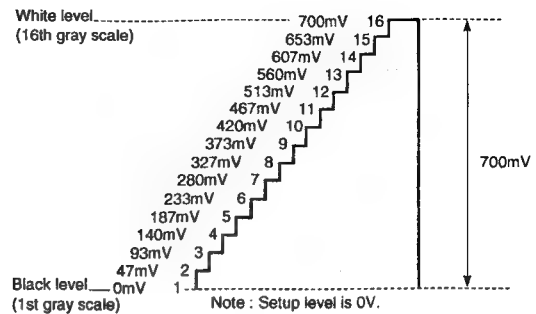
- Use a Helmholtz device to adjust an unit with no horizontal magnetic field and a vertical field of 40 μT. Inspect the unit under the same conditions.
- The ambient illuminance must be 200 lux.
- Use an external degaussing coil any time the DEGAUSS switch does not remove color shading.
- To check the image width, height, linearity and distortion, proceed as below.
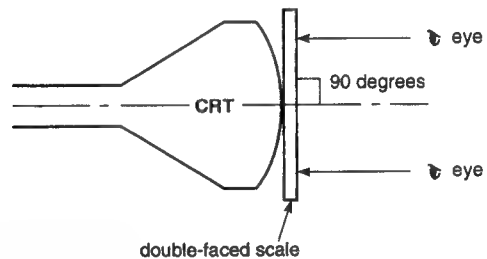
ADJUSTMENT SOFTWARE

1. Software operating procedure

A) Power on the computer.

B) Connect the Communication cable for monitor adjustment.

C) Insert the adjustment disk into the drive.

D) At the A:> prompt type "VSR" , then press [ENTER].

> A function to identify the connected monitor is provided to prevent accidents due to erroneous use of the HV10S chassis program. If this program is used for any monitor other than the HV10S, the message reading "This monitor is not an HV10S chassis. All further activity has been prevented" is displayed and the operation is stopped.

E) Refer to the adjustment procedures.

2. Adjustment Program

Main Menu of Adjustment Program

```
<<HV10S ADJUSTMENT PROGRAM MENU>>
                      (e: exit, q: quit)  <Ver *.*>
1) Load data from FILE      6) Save data to FILE
2) Adjust VSR setting       7) Special ADJUST
3) Adjust STD setting       8) Information Service
4) Adjust Factory preset    9) Show Version & Error
5) Clear User preset        10) DDC EDID Date seeting
```

SERVICE ADJUSTMENT CONTROL LOCATION

FRONT CONTROL UNIT

LED   SW994   SW993   SW992   SW991   N22B

B

R

IC1301

GREEN VIDEO
N1102B

CRT
SOCKET

VIDEO P.C.B.

SOLDER SIDE

MAIN P.C.B.

COMPORNENT SIDE

R549

R555

Test Point for H DRIVE B Adj.

T821

SSP CARD

N1015A / B

Test Point for DAF Adj.

AC SW.

AC IN

FUSE

SIGNAL IN

COM. PORT

TP5

FBT

F1 (D - FOCUS)

F2 (S - FOCUS)

SCREEN VR
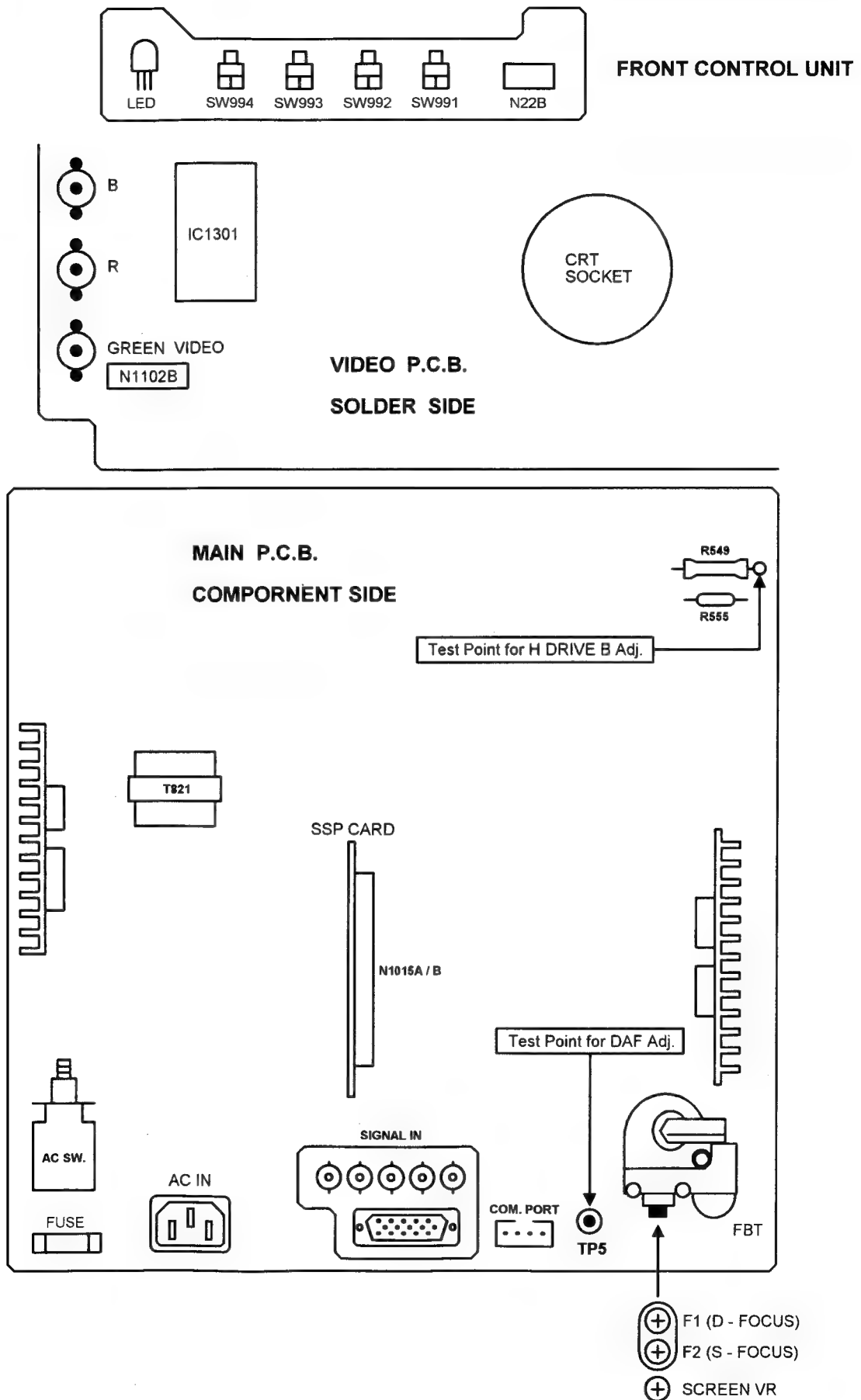
REQUIRED ADJUSTMENT PROCEDURE AFTER A PARTS IS REPLACED (✓ IS REQUIRED)

	ADJUSTMENT ITEM	MAIN P.C.B.	SSP CARD	VIDEO P.C.B.	CRT DY	IC1301 IC1302 IC1303 IC1305 IC1331	Q1065 Q1165 Q1265	IC490	IC580	Q550 IC850 Q881	FBT IC671 Q601
A	DATA SETTING *	✓	✓								
B	H. DRIVE +B ADJUST	✓	✓						✓		
C	EHT ADJUST	✓	✓		✓						✓
D	H CENTER ADJUST	✓	✓		✓					✓	✓
E	SUB ADJUST	✓	✓		✓			✓		✓	✓
F	VSR SETTING	✓	✓		✓			✓		✓	✓
G	PRESET ADJUST	✓	✓		✓			✓		✓	✓
H	BRIGHTNESS, COLOR	✓	✓	✓	✓	✓	✓				✓
I	DAF ADJUST	✓	✓		✓						✓
J	FOCUS ADJUST	✓	✓		✓						✓
K	DATA SAVING	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
L	DDC DATA SETTING	✓	✓								
	PURITY & CONVERGENCE				✓						
	SCREEN CHECK	✓		✓	✓	✓	✓	✓	✓	✓	✓

* (A) DATA SETTING : Do not load standard data except when main PCB and SSP Card are replaced.

ADJUSTMENT PROCEDURE

Note 1 : Check to be sure that the program disk name is **S110** before making necessary adjustment.

Note 2 : Unless otherwise specified, the monitor state is as given at right.

Note 3 : The underlined places indicate the adjustment items on the screen of the PC.

1. Description of Adjustment Method

	ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
A	**STANDARD DATA SETTING** 1) Load data from FILE		A1 A2 A3 AE		Turn on the power switch of the monitor. Set the cell to the menu at left and press [⏎]. A massage **FILE -> EEPROM FILE NAME (q or Q escape) [ ] :** is displayed. So key in the DACDATA.DAT (when using the standard data) and press [⏎]. Turn off the power switch of the monitor, then turn on again.	
	Do not load standard data except when Main P.C.B. and SSP Card are replaced.					
B	**H. DRIVE +B** 2) Adjust VSR setting	◇ Digital Voltmeter ▼ R549 ~ GND Refer to Service Adjustment Control Location for this connect point. □ Crosshatch	B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12 BE	 HV10S-1 HV10S-2 HV10S-3 HV10S-4	Set the cell to the menu at left and press [⏎]. Set the cell to the adjusting mode INTP [0] and press [⏎]. Check that the input signal to the monitor is [fH 29.1KHz] and [fV 47.5Hz] and press [⏎]. Set the cell to H. DRIVE +B and press [⏎]. Make the adjustment to the value shown at right by using [←] and [→]. Register by press [⏎] and return to menu of **B2** by press [**E**]. Input signal [fH 52.2kHz] and [fV 92.3Hz] Select Adjusting mode INTP [1], and repeat above (**B4 B5 B6**) procedure. Input signal [fH 75.2kHz] and [fV 137.2Hz] Select Adjusting mode INTP [2], and repeat above (**B4 B5 B6**) procedure. Input signal [fH 96.5kHz] and [fV 182.1Hz] Select Adjusting mode INTP [3], and repeat above (**B4 B5 B6**) procedure. Press [**E**] to return to main menu.	 25.3V ±0.5V 23.4V ±0.5V 21.4V ±0.5V 19.2V ±0.5V

ITEM / Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
C **EHT ADJUST** 3) Adjust OTHER setting Adjust NON-VSR Setting	◇ Digital Voltmeter ◇ High Voltage Probe ▼ Anode Cap ~ GND □ RGB off (Sync only)	C1 C2 C3 C4 C5 C6 C7 C8 CE	HV10S-4	Turn the power switch of the monitor OFF. Connect high voltage probe to Anode Cap and GND. Turn the power switch of the monitor ON. Set the cell to the menu at left and press [↵]. Set the cell to Adjust NON-VSR Setting and press [↵]. Check that the input signal to the monitor is [fH 96.5kHz] and [fV 182.1Hz] and press [↵]. Move the cell to EHT and press [↵]. Make adjustment to the value shown at right by using [←] and [→]. Register by pressing [↵] and return to menu of **C5**, then return to the main menu by pressing [**E**].	27kV ±0.3kV
D **H. CENTER** 2) Adjust VSR setting	□ RGB off (Sync only)	D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 DE	HV10S-1 HV10S-2 HV10S-3 HV10S-4	Set the Brightness to MAX by using OSD. Set the cell to the menu at left and press [↵]. Set the cell to the adjusting mode INTP [0] and press [↵]. Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz] and press [↵]. Set the cell to H CENTER and press [↵]. Make the adjustment to the value shown at right by using [←] and [→]. Press [↵] to register, and return to menu of **D3**. Input signal [fH 52.2kHz] and [fV 92.3Hz] Select Adjusting mode INTP [1], and repeat above (**D5 D6 D7**) procedure. Input signal [fH 75.2kHz] and [fV 137.2Hz] Select Adjusting mode INTP [2], and repeat above (**D5 D6 D7**) procedure. Input signal [fH 96.5kHz] and [fV 182.1Hz] Select Adjusting mode INTP [3], and repeat above (**D5 D6 D7**) procedure. Return to the main menu by pressing [**E**].	A A=B B Back raster Set the raster to the center with respect to the bezel.

ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value

E **SUB ADJUST**
3) Adjust OTHER
setting
 	
Adjust NON-VSR
Setting
 	
H Size, H Position, V Size and V PCC adjustment do not register to interpolation data.
	□ Crosshatch	E1
		
		E2
		
		E3
		
		E4
		
		EE
			Mode-1	Set the cell to the menu at left and press [↵],
				then go to sub menu.
				Set the cell to Adjust NON-VSR Setting at the
				sub menu and press [↵].
				Check that the input signal to the monitor is
				 [fH 93.8KHz] and [fV 75.0Hz] and press [↵].
				Set the cell to following items, press [↵] and
				make the adjustment to the value shown at right
				by using [←] and [→].
				
				  * H. SIZE * H POSITION
				  * V SIZE * V PCC
				  ① V POSITION ⑤ V PCC CORNER
				  ② V LIN (S) ⑥ TRAPEZOID
				  ③ V LIN (C) ⑦ PARALLELOGRAM
				  ④ V PCC (S) ⑧ V PCC BALANCE
				
				After adjustment, return to menu of **E2** by
				pressing [**E**], then return to the main menu by
				pressing [**E**].
					②③④⑤⑥⑦⑧:
					Best point
					
					① / H Posi :
					Center
					
					H : 392mm
					V : 294mm

F **VSR SETTING**
2) Adjust VSR
Setting
 	
V Position adjustment do not register to interpolation data.
	□ Crosshatch	F1
		F2
		
		F3
		
		F4
		
		F5
		F6
		F7
		
		F8
		F9
		
		F10
		F11
		
		FE
			HV10S-1
			
			HV10S-2
			
			HV10S-3
			
			HV10S-4
				Set the cell to the menu at left and press [↵].
				Set the cell to the adjusting mode INTP [0] and
				press [↵].
				Check that the input signal to the monitor is
				 [fH 29.1kHz] and [fV 47.5Hz] and press [↵].
				Set the cell to following items, press [↵] and
				make the adjustment to the value shown at right
				by using [←] and [→].
				
				  * V POSITION
				  ① H. SIZE ③ V SIZE
				  ② H POSITION ④ V PCC GAIN
				
				Press [↵] to register, and return to menu of **F2**.
				Input signal [fH 52.2kHz] and [fV 92.3Hz]
				Select Adjusting mode INTP [1], and repeat
				above (**F4 F5**) procedure.
				Input signal [fH 75.2kHz] and [fV 137.2Hz]
				Select Adjusting mode INTP [2], and repeat
				above (**F4 F5**) procedure.
				Input signal [fH 96.5kHz] and [fV 182.1Hz]
				Select Adjusting mode INTP [3], and repeat
				above (**F4 F5**) procedure.
				Return to the main menu by pressing [**E**].
					① : 392mm ±5
					③ : 294mm ±5
					
					② / V Posi :
					Center
					
					④ : Best point

ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value

PRESET ADJUST
4) Adjust Factory
preset
	□ Crosshatch	G1
		G2
		
		G3
			Mode-1	Set the cell to the menu at left and press [⏎].
				Check that the input signal to the monitor is
				  [fH 93.8KHz] and [fV 75.0Hz] and press [⏎].
				Set the cell to following items, press [⏎] and
				make the adjustment to the value shown at right
				by using [←] and [→].
				
				  ① H. SIZE ⑤ V. PCC
				  ② H. POSI ⑥ V. PCC BALANCE
				  ③ V. SIZE ⑦ TRAPEZOID
				  ④ V. POSI ⑧ PARALLEL
					① : 392mm ±5
					③ : 294mm ±5
					②④ : Center
					⑤⑥⑦⑧ :
					Best point

		G4 G5 G6	Mode-2	After adjustment, return to main menu by pressing [E] and [Y]. Check that the input signal to the monitor is [fH 31.5KHz] and [fV 60.0Hz] and press [⏎]. Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
		G7 G8 G9	Mode-3	After adjustment, return to the menu of **G2** by pressing [E] and [Y]. Check that the input signal to the monitor is [fH 46.9KHz] and [fV 75.0Hz] and press [⏎]. Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
		G10 G11 G12	Mode-4	After adjustment, return to the menu of **G2** by pressing [E] and [Y]. Check that the input signal to the monitor is [fH 60.0KHz] and [fV 75.0Hz] and press [⏎]. Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
		G13 G14 G15	Mode-5	After adjustment, return to the menu of **G2** by pressing [E] and [Y]. Check that the input signal to the monitor is [fH 68.7KHz] and [fV 75.0Hz] and press [⏎]. Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	① : 392mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point
		G16 G17 G18	Mode-6	After adjustment, return to the menu of **G2** by pressing [E] and [Y]. Check that the input signal to the monitor is [fH 64.0KHz] and [fV 60.0Hz] and press [⏎]. Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→]. After adjustment, return to the menu of **G2** by pressing [E] and [Y].	① : 368mm ±7 ③ : 294mm ±7 ②④ : Center ⑤⑥⑦⑧ : Best point

The table row-label column on the far left shows **G**.

- To be continued -

ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
G					
PRESET ADJUST 4) Adjust Factory preset	□ Crosshatch	G19	Mode-7	Check that the input signal to the monitor is [fH 80.0KHz] and [fV 75.0Hz] and press [┘].	① : 368mm ±7
		G20		Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	③ : 294mm ±7 ②④ : Center
		G21		After adjustment, return to the menu of **G2** by pressing [**E**] and [**Y**].	⑤⑥⑦⑧ : Best point
		G22	Mode-8	Check that the input signal to the monitor is [fH 87.5KHz] and [fV 70.0Hz] and press [┘].	① : 392mm ±7
		G23		Make adjustment ①~⑧ of **G3** to the value shown at right by using [←] and [→].	③ : 294mm ±7 ②④ : Center
		GE		After adjustment, return to the menu of **G2** by pressing [**E**] and [**N**], then return to the main menu by pressing [**E**].	⑤⑥⑦⑧ : Best point
H					
CRT CUT-OFF ADJUST	◇ TV Color Analyzer II □ RGB Off (Sync only)	H1	Mode-1	Set the Contrast to MAX, Brightness to Center and Color is "9300k +8" using the OSD.	
		H2		Check that the input signal to the monitor is [fH 93.8KHz], [fV 75.0Hz] and turn off the RGB signal.	
3) Adjust OTHER setting Adjust VIDEO Setting		H3 H4		Set the cell to the menu at left and press [┘]. Set the cell to Adjust VIDEO Setting at the sub menu and press [┘].	
		H5 ~ H14		Make the adjustment R,G and B Low Light by using [←] [→] and Screen VR to CRT cut-off. **Please refer to flow chart for this adjustment on page 30.**	
BRIGHTNESS / COLOR ADJUST	□ White window (8cm×8cm at center)	H15 H16		Change to the pattern at left. Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. R. SUB CONT (COLOR0) G. SUB CONT (COLOR0) B. SUB CONT (COLOR0)	$Y=105$ cd/m^2 $x=0.283 \pm 0.20$ $y=0.293 \pm 0.20$
		H17		Set Contrast to MIN using the OSD.	
		H18		Move the cell to the following items and make the adjustment to the value shown at right by using [←] and [→]. R. LOW LIGHT G. LOW LIGHT B. LOW LIGHT **Adjust two colors only out of above three as shown in H13 on page 30.**	$x=0.283 \pm 0.20$ $y=0.293 \pm 0.20$
		H19 H20		Set Contrast to MAX using the OSD. Check the value shown at right, then If out of range, to repeat **H15~H18**. - **To be continued** -	$Y=105$ cd/m^2 $x=0.283 \pm 0.20$ $y=0.293 \pm 0.20$

ITEM / Program Menu	◇ Test Meter / ▼ Test Point / □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
H					
ABL	□ White flat field (full window)	H21	Mode-1	Change to the pattern at left.	Y=95 cd/m^2
		H22		Move the cell to <u>ABL (COLOR0)</u> and make the adjustment to the value shown at right by using [←] and [→].	
		H23		Press [**E**] to messages will appear. **Start automatic calculation. OK (y/n) ->**	
		H24		Press[**Y**]and [↵]. **Refresh LOW-LIGHT2 data (y/n) ->**	
		H25		Press[**Y**]and [↵], then return to menu of **H4**.	
		H26		Return to the main menu by pressing [**E**].	
1.0V ADJUST 7) Special ADJUST 1: Adjust VIDEO 1.0Vpp	□ White window (8cm×8cm at center)	H27 H28 H29 H30		Change to the pattern at left. Change signal to 1.0V p-p Video. Set the cell to the menu at left and press [↵]. Select the <u>1: Adjust VIDEO 1.0Vpp</u> from the menu.	
		H31		Make the adjustment to the value shown at right by using [←] and [→].	Y=105 cd/m^2
		HE		Press [↵] to return to menu of **H30**, then return to the main menu by pressing [**E**]	
I					
DAF ADJUST 2) Adjust VSR setting	□ White flat field ◇ Oscilloscope ▼ TP5~GND 100:1 probe ▼ N1102B ~ GND 10:1 probe	I 1 I 2 I 3		Set the cell to the menu at left and press [↵]. Set the cell to the menu at left and press [↵]. Set the cell to the adjusting mode <u>INTP [0]</u> and press [↵].	
		I 4	HV10S-1	Check that the input signal to the monitor is [fH 29.1kHz] and [fV 47.5Hz].	
		I 5 I 6		Set the cell to <u>H DAF PHASE</u> and press [↵]. Adjust as shown at below by using [←] and [→], and press [↵] for registration. (Refer to **Fig. I6** for adjustment on next page)	
		I 7 I 8		Set the cell to <u>H DAF GAIN</u> and press [↵]. Adjust as shown at right by using [←] and [→], and press [↵] for registration. (Refer to **Fig. I8** for adjustment on next page)	C - D = 468V
		I 9		Press [↵] to register, and return to menu of **I3**.	
		I 10	HV10S-2	Input signal [fH 52.2kHz] and [fV 92.3Hz]	
		I 11		Select Adjusting mode <u>INTP [1]</u>, and repeat above (**I5 I6 I7 I8 I9**) procedure.	
		I 12	HV10S-3	Input signal [fH 75.2kHz] and [fV 137.2Hz]	
		I 13		Select Adjusting mode <u>INTP [2]</u>, and repeat above (**I5 I6 I7 I8 I9**) procedure.	
		I 14	HV10S-4	Input signal [fH 96.5kHz] and [fV 182.1Hz]	
		I 15		Select Adjusting mode <u>INTP [3]</u>, and repeat above (**I5 I6 I7 I8 I9**) procedure.	
		I E		Return to the main menu by pressing [**E**].	

Fig. I4

Set position to A=B

A B

VIDEO

H - DAF

Fig. I8

Set voltage to C - D = 468V

C : Clossing VIDEO and H. DAF
D : Bottom of H. DAF

VIDEO

C

468V

H - DAF

D
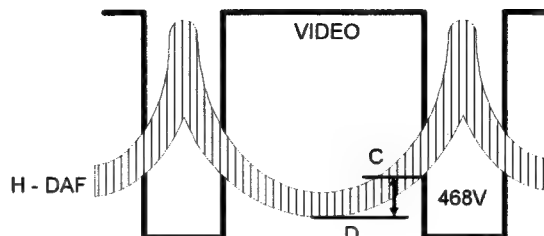
Oscilloscope Range

HV10S - 1   10 µs / div.
HV10S - 2   5 µs / div.
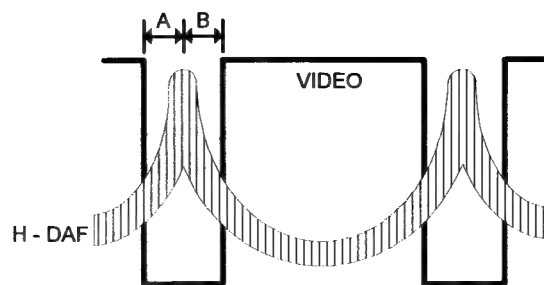HV10S - 3   5 µs / div.
HV10S - 4   2 µs / div.

	ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
J	**FOCUS**	□ Character	J1 J2 J3 J4	MODE-1	Check that the input signal to the monitor is [fH 93.8KHz] and [fV 75.0Hz]. Make the corner sections of the screen optimum by turning D-FOCUS VR on the FBT. Make the center section optimum by turning S-FOCUS VR on the FBT. Repeat **J2** and **J3** to make it optimum.	
K	**DATA SAVING** 6) Save data to file		K1 K2		Set the cell to the menu at left and press [↵]. Key in the file name after [ ] :. Use serial number as a file name (EXAMPLE : FF7410001 = "FF7410.001")	

	ITEM Program Menu	◇ Test Meter ▼ Test Point □ Pattern	JOB CODE	Input Signal	Operation	Adjusting Value
L	**DDC DATA SET** 7) Special ADJUST 7: Change DDC data		L1 L2 L3 L4 L5 LE		Set the cell to the menu at left and press [↵]. Select the 7: Change DDC data from the menu. Key in the monitor serial number and press [↵]. < ID Serial Number : > (4 digits) Key in the product Week and press [↵]. < Week of Manufacture : > (2 digits) Key in the product Year and press [↵]. < Year of Manufacture : > (4 digits) Press [**E**] to return to main menu. To get data of **L3** (U/N), **L4** (week) and **L5** (year) by reading **Fig. L** from the Serial Number.	

Fig. L

F	×	7	4	1	0	0	0	1
①		②	③		④			

① Factory Code   ③ Month & Date Code
② Year Code   ④ Unit Number

Example

S/N : FA7410001
  Year ------------------- 1997
  Week ------------------ 27
  Unit Number -------- 0001

Data table for **Year** and **Week** from the **Serial Number**

②③	Year	Week	②③	Year	Week	②③	Year	Week	②③	Year	Week
741	**1997**	**27**	811	**1998**	**02**	841	**1998**	**27**	911	**1999**	**02**
742	**1997**	**28**	812	**1998**	**03**	842	**1998**	**29**	912	**1999**	**03**
743	**1997**	**30**	813	**1998**	**04**	843	**1998**	**30**	913	**1999**	**04**
744	**1997**	**31**	814	**1998**	**06**	844	**1998**	**32**	914	**1999**	**06**
745	**1997**	**33**	815	**1998**	**07**	845	**1998**	**33**	915	**1999**	**07**
746	**1997**	**34**	816	**1998**	**09**	846	**1998**	**34**	916	**1999**	**09**
751	**1997**	**36**	821	**1998**	**10**	851	**1998**	**36**	921	**1999**	**10**
752	**1997**	**37**	822	**1998**	**11**	852	**1998**	**37**	922	**1999**	**11**
753	**1997**	**39**	823	**1998**	**13**	853	**1998**	**39**	923	**1999**	**13**
754	**1997**	**40**	824	**1998**	**14**	854	**1998**	**40**	924	**1999**	**14**
755	**1997**	**42**	825	**1998**	**16**	855	**1998**	**42**	925	**1999**	**16**
756	**1997**	**43**	826	**1998**	**17**	856	**1998**	**43**	926	**1999**	**17**
761	**1997**	**45**	831	**1998**	**18**	861	**1998**	**45**	931	**1999**	**19**
762	**1997**	**46**	832	**1998**	**20**	862	**1998**	**46**	932	**1999**	**20**
763	**1997**	**47**	833	**1998**	**21**	863	**1998**	**48**	933	**1999**	**21**
764	**1997**	**49**	834	**1998**	**23**	864	**1998**	**49**	934	**1999**	**23**
765	**1997**	**50**	835	**1998**	**24**	865	**1998**	**50**	935	**1999**	**24**
766	**1997**	**52**	836	**1998**	**26**	866	**1998**	**52**	936	**1999**	**26**

CRT CUT- OFF ADJUSTMENT

Conditions

Signal : Turn off the R,G,B (sync signal only)

Adjust Menu : " 3) Adjust OTHER setting " at main menu
" Adjust VIDEO setting " at sub manu

WARNING

Do not turn the screen VR after this adjustment.

H5 Set screen VR fully counterclockwise (Min).

H6 Set BRIGHTNESS to center point by using the OSD

H7 Set data value to " 30 " for R, G, B LOW LIGHT

H8 Turn screen VR until the raster appears with any one of three (R,G,B) colors

---

If Red appears in H8

H9 Set Value to " FF " for < R. LOW LIGHT >

H10 Turn screen VR until the raster appears with any one of two (G or B) colors.

- **If Green appears in H10**

  H11 Set Value to " FF " for < G. LOW LIGHT >

  H12 Adjust Screen VR to " 0.50 " cd/m² for Blue raster

  H13 Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [x=0.283 y=0.298]

- **If Blue appears in H10**

  H11 Set Value to " FF " for < B. LOW LIGHT >

  H12 Adjust Screen VR to " 3.51 " cd/m² for Green raster

  H13 Adjust < R. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

If Green appears in H8

H9 Set Value to " FF " for < G. LOW LIGHT >

H10 Turn screen VR until the raster appears with any one of two (R or B) colors.

- **If Red appears in H10**

  H11 Set Value to " FF " for < R. LOW LIGHT >

  H12 Adjust Screen VR to " 0.50 " cd/m² for Blue raster

  H13 Adjust < R. LOW LIGHT > < G. LOW LIGHT > to [x=0.283 y=0.298]

- **If Blue appears in H10**

  H11 Set Value to " FF " for < B. LOW LIGHT >

  H12 Adjust Screen VR to " 1.00 " cd/m² for Red raster

  H13 Adjust < G. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

If Blue appears in H8

H9 Set Value to " FF " for < B. LOW LIGHT >

H10 Turn screen VR until the raster appears with any one of two (R or G) colors.

- **If Red appears in H10**

  H11 Set Value to " FF " for < R. LOW LIGHT >

  H12 Adjust Screen VR to " 3.51 " cd/m² for Green raster

  H13 Adjust < R. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

- **If Green appears in H10**

  H11 Set Value to " FF " for < G. LOW LIGHT >

  H12 Adjust Screen VR to " 1.00 " cd/m² for Red raster

  H13 Adjust < G. LOW LIGHT > < B. LOW LIGHT > to [x=0.283 y=0.298]

H14 Test Pattern : 16 gradation grayscale. Adjust screen VR so the 2nd level of gray appears slightly.

2. Adjustment Location for Purity and Convergence

① Differential VR YV-S
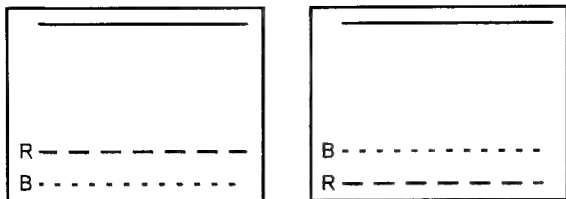
② Differential VR YV-N
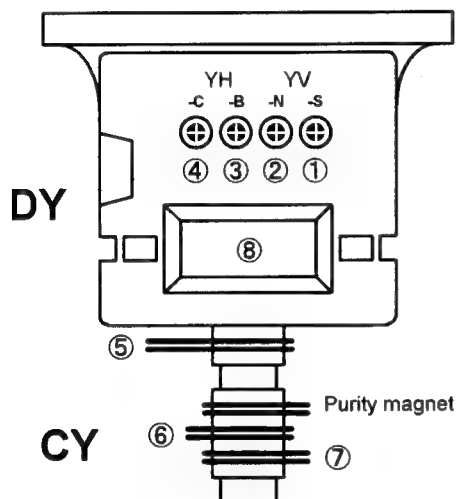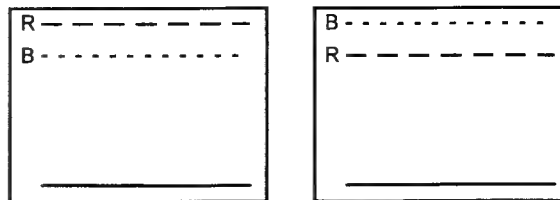
③ Differential VR YH-B
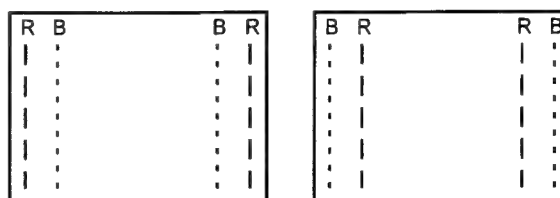
④ Differential VR YH-C

DY

YH   YV
-C -B   -N -S
⊕ ⊕ ⊕ ⊕
④ ③ ② ①

⑧

⑤

CY   ⑥

Purity magnet

⑦
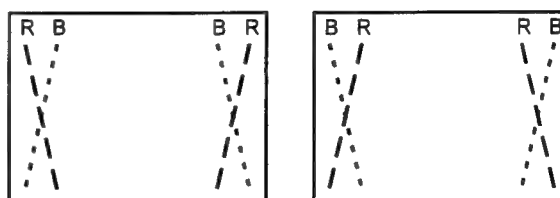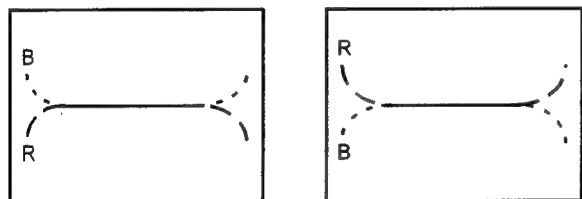
⑤ Four-pole magnet B

Beams are twisted lefthand   Beams are twisted righthand

For example lefthand
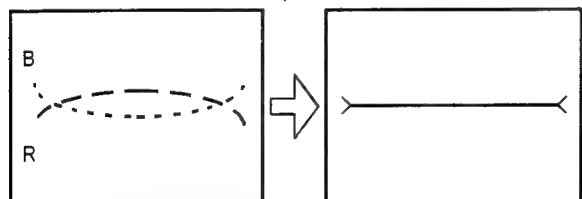
With four-pole magnet B ⑤   With four-pole magnet A ⑥

⑥ Four-pole magnet A
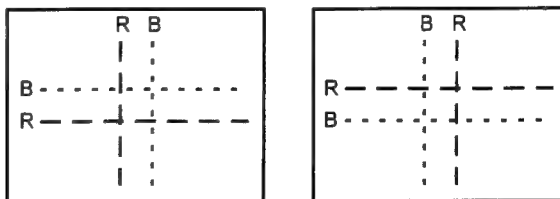
⑦ Six-pole magnet
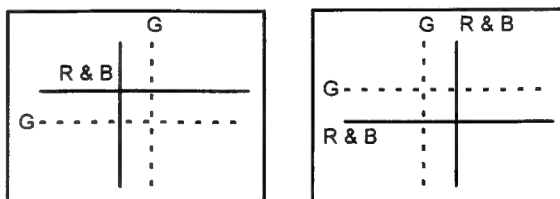
⑧ Differential Coil
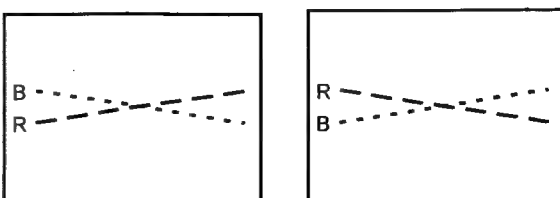
SHEET (1) / VIDEO AMP for HV10S
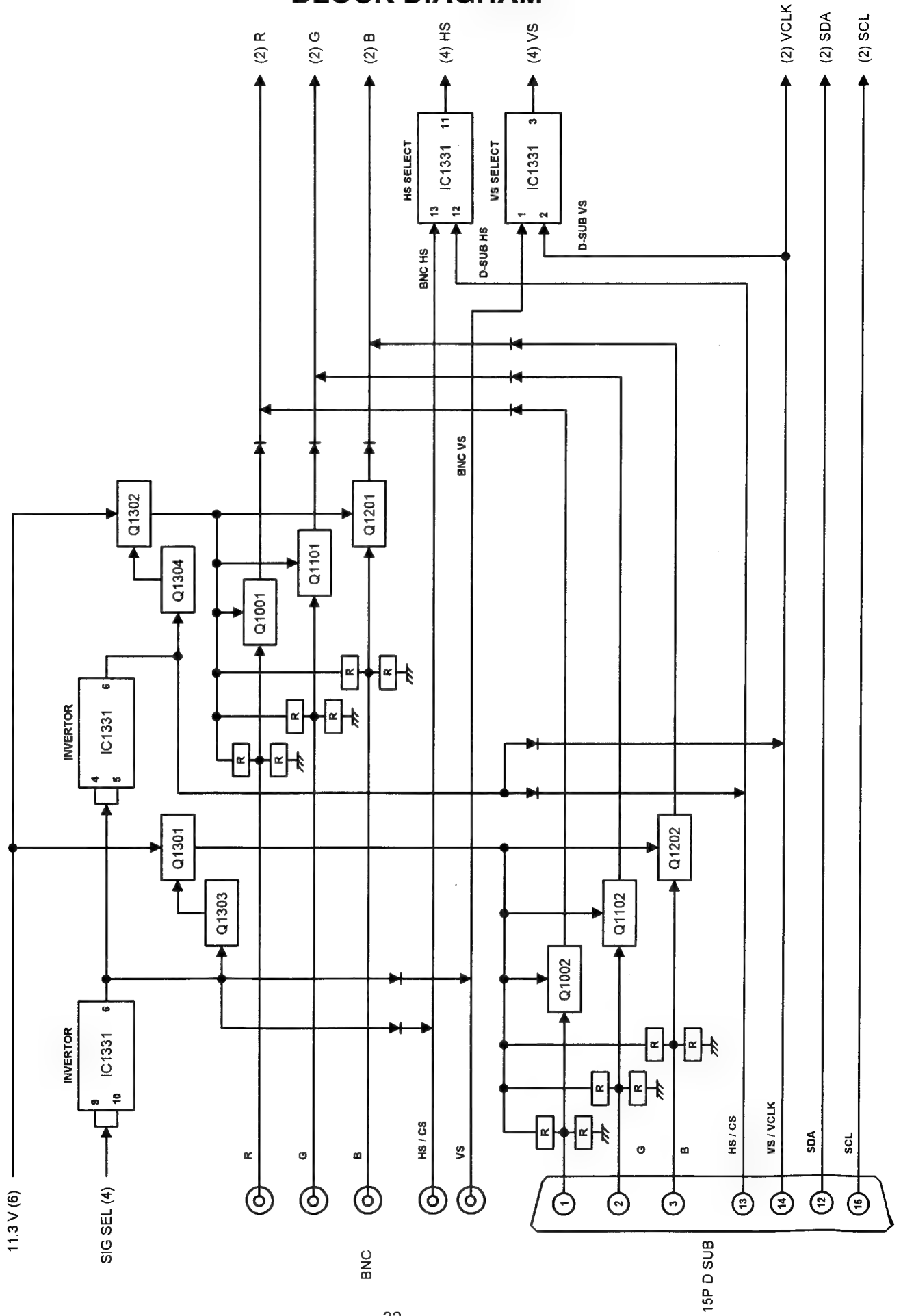
SHEET (2) / VIDEO OUT for HV10S
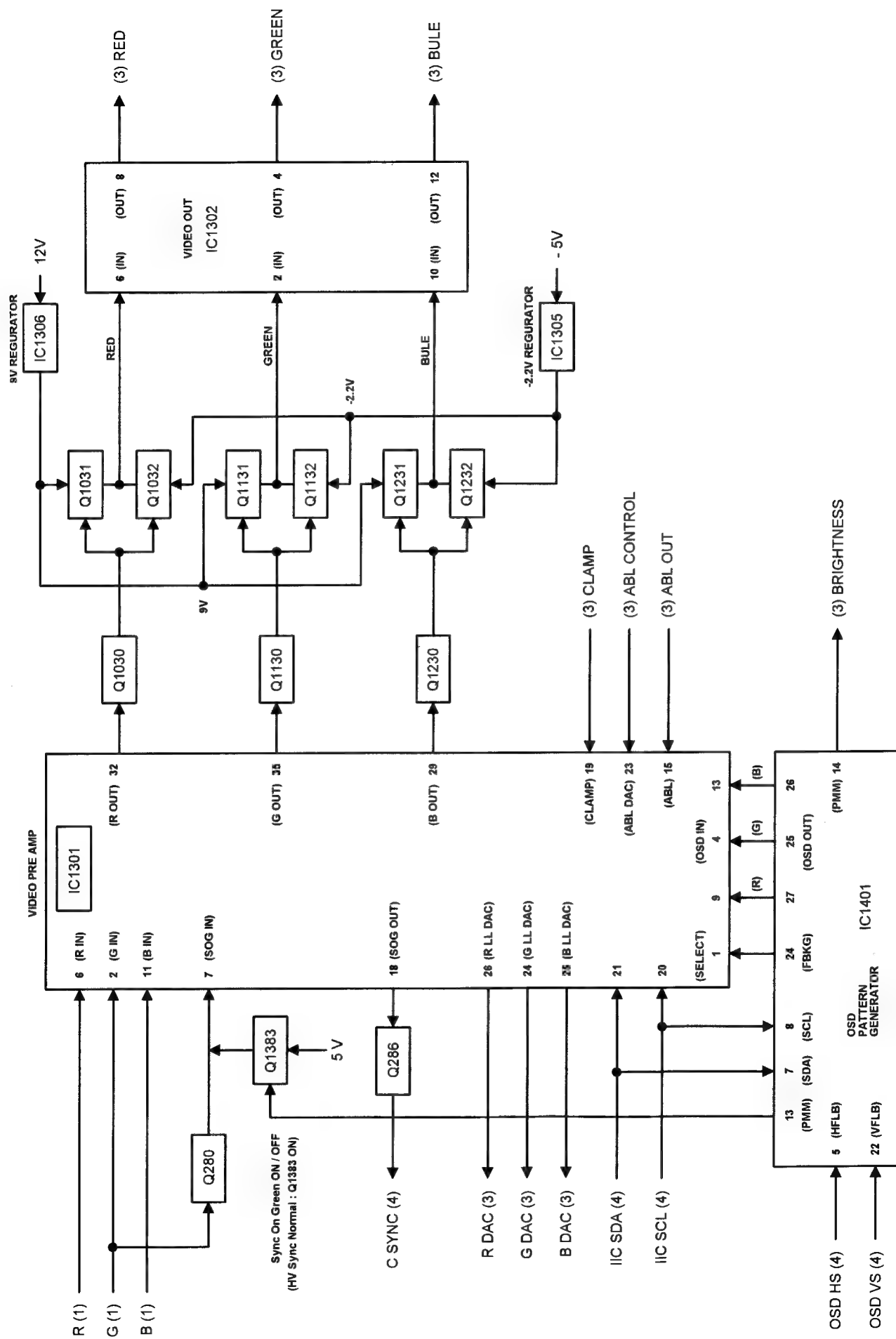
SHEET (3) / VIDEO OUT for HV10S
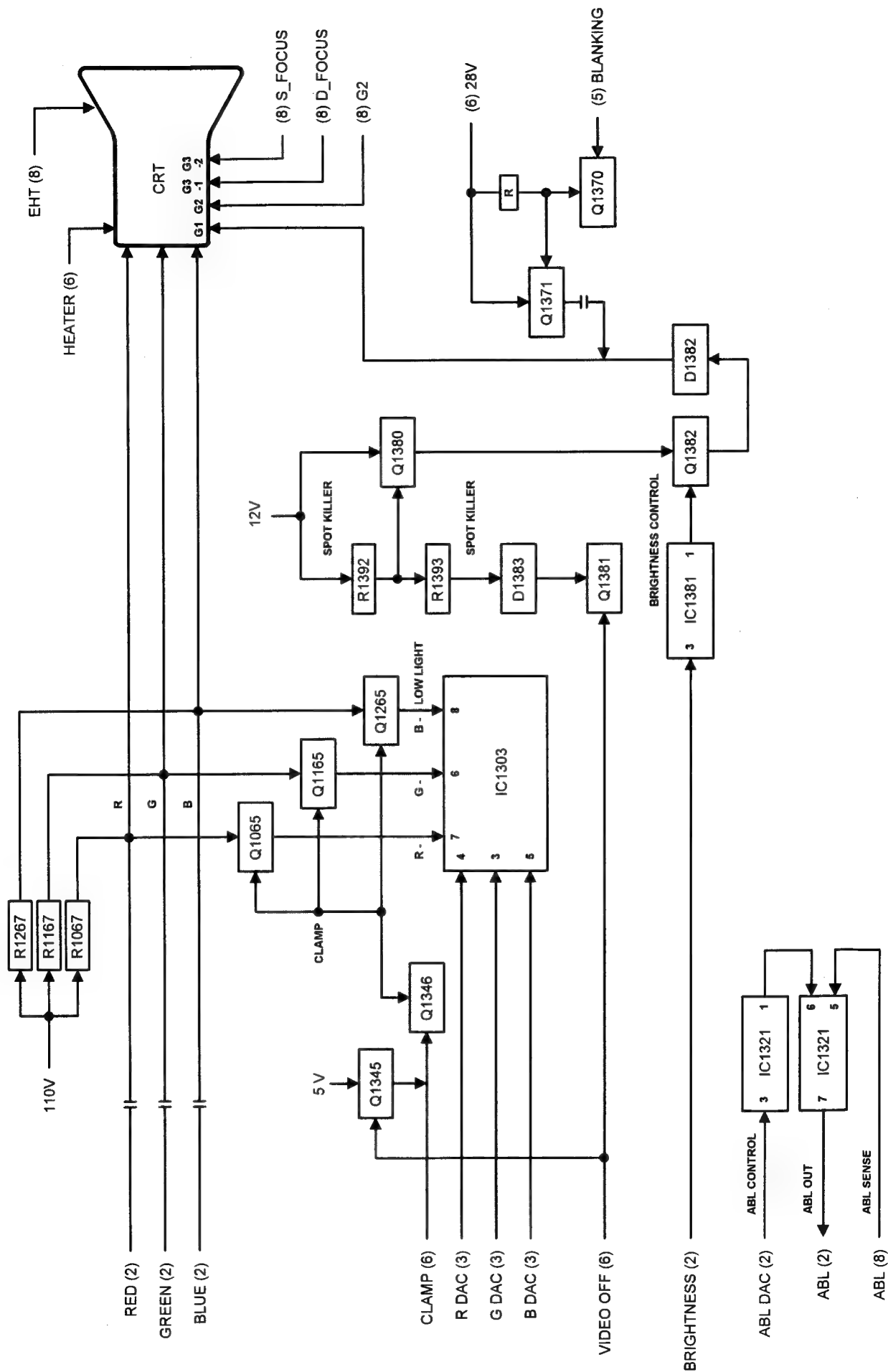
SHEET (4)(5) / SSP CARD for HV10S
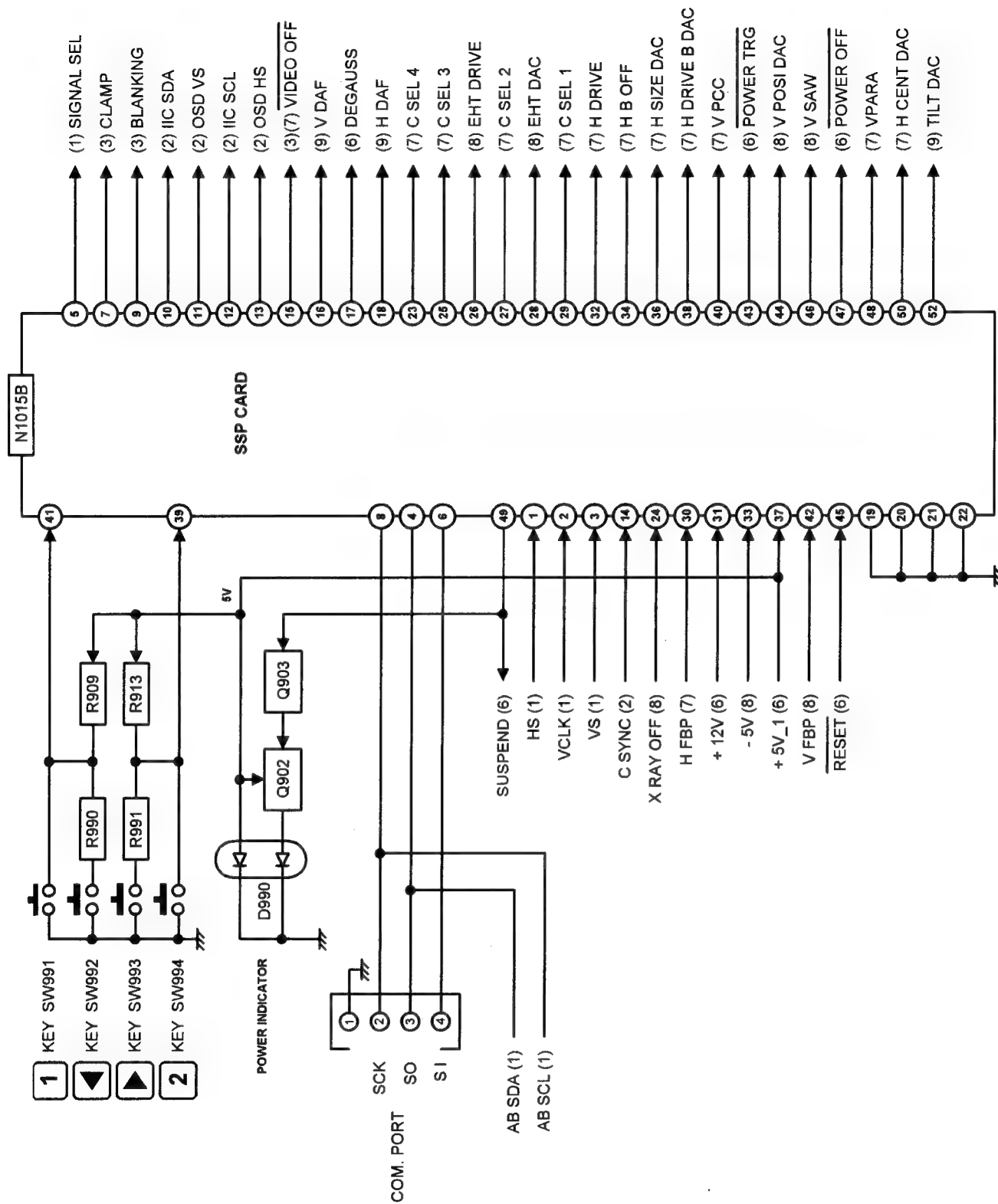
SHEET (6) / POWER SUPPLY for HV10S

SHEET (7) / HORIZONTAL DEFLECTION for HV10S

SHEET (8) / EHT OUT for HV10S

SHEET (9) DAF OUT / TILT CONTROL / TCO for HV10S
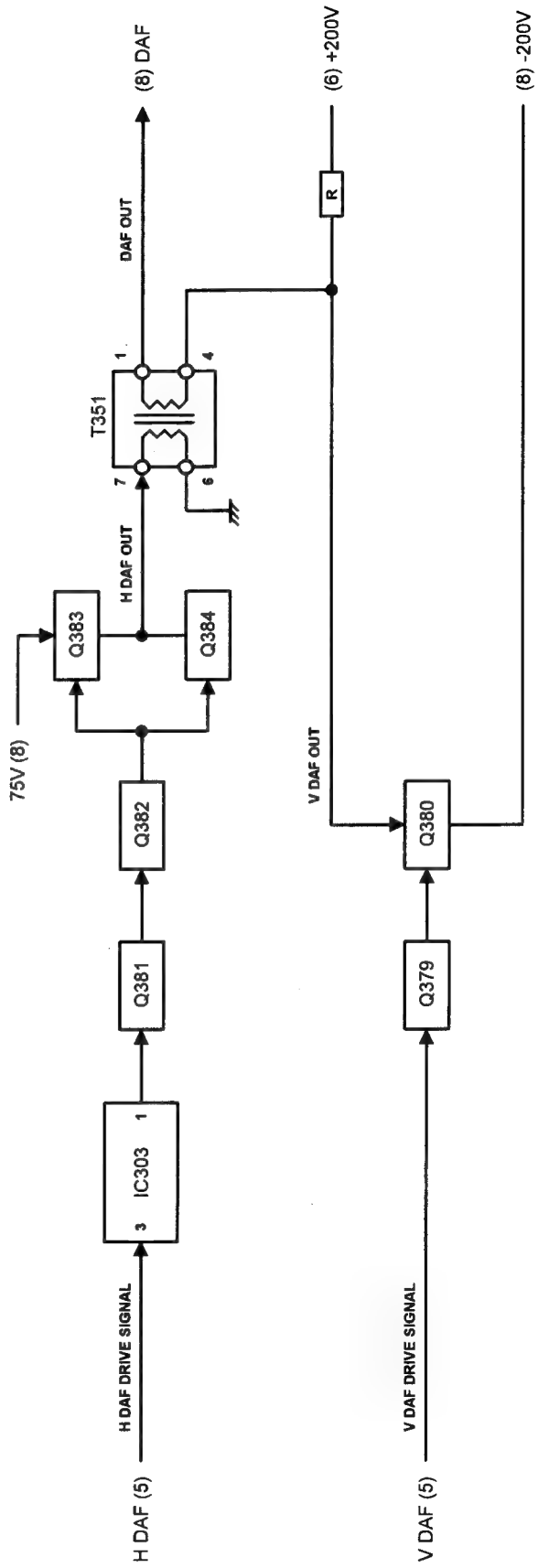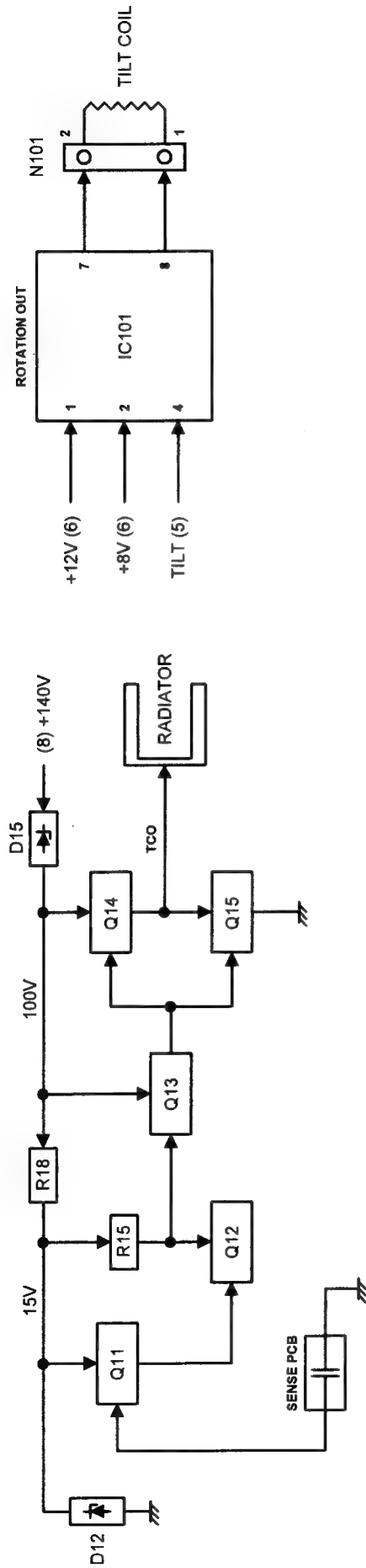
• NO CHARACTERS
• MISSING ONE COLOR

EXAMPLE : GREEN MISSING
SIGNAL IN : 15P D-SUB

CRT KG 70V 0-p ? — YES → **NO RASTER**

NO

IC1302 (4) 68.4V 0-p ? — YES → CHECK
• IC1303
• Q1165

NO

IC1302 (2) 1.9V 0-p ? — YES → CHECK IC1302

NO

IC1301 (35) 4.8V 0-p ? — YES → CHECK
• Q1130 • Q1132
• Q1131

NO

IC1301 (2) 3.0V 0-p ? — YES → CHECK IC1301

NO

Q1102 (B) 3.2V 0-p ? — YES → CHECK Q1102

NO

CHECK
• IC1331 • Q1303
• Q1301 • INPUT SIG.
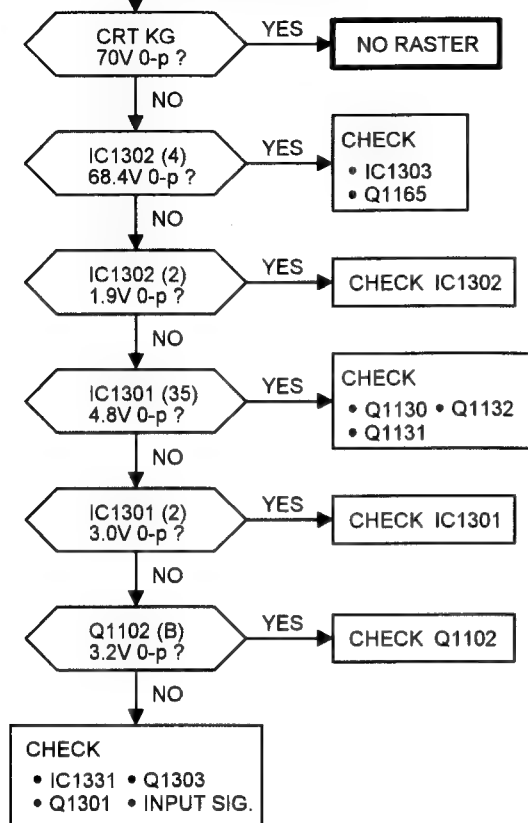
OSD DOES NOT WORK

EXAMPLE : GREEN MISSING
CONDITION : OSD ON

YES

IC1301 (4) 5V p-p ?

NO

IC1401 (5) 4.9V p-p ? — NO → CHECK SSP CARD (13)

YES

IC1401 (22) 4.9V p-p ? — NO → CHECK SSP CARD (11)

YES

CHECK
• IC1401
• SSP CARD
• FRONT SWITCH

IC1301 (1) 5V p-p ? — NO → CHECK IC1401

YES

CHECK IC1301

NO POWER

D851 (C) 8V ? — NO (SUB & MAIN P/S OFF) →

YES (MAIN P/S OFF)

IC821 (8) LOW ? — YES (POWE SAVE ACTIVE) →

NO

Q821 (G) 19.0V p-p ? — YES → CHECK Q821

NO

CHECK IC821

OK

CHECK
• D861 • D862 • D863
• D864 • D865 • D866
• D867 • D868
• SECOND. POWER line

T823 (8) CORRECT ? — YES → CHECK
• IC841
• T823

NO

D821 (2)(3) AC OK ? — NO → CHECK AC line

YES

CHECK D821

Q853 (B) 0V ? — NO → CHECK
• SSP CARD (49)
• INPUT SYNC SIGNAL

YES

CHECK
• Q853 • PC821

Voltage of T823 (8)

AC Input	IC841 (D)
100V	121V
120V	149V
220V	275V
240V	309V

NO RASTER

CRT G1 -63.2V 0-p ? — NO →

CRT G1 -63.2V 0-p ? — YES ↓

CRT G2 500 ~ 600V ? — NO → CHECK FBT

CRT G2 500 ~ 600V ? — YES ↓

CRT KR/KG/KB 70~80V 0-p ? — NO → **NO CHARACTERS**

CRT KR/KG/KB 70~80V 0-p ? — YES ↓

CRT EHT 27kV ? — YES → CHECK CRT

CRT EHT 27kV ? — NO ↓

IC671 (1) 10V p-p ? — YES → CHECK
• Q601
• FBT
• 75V line

IC671 (1) 10V p-p ? — NO ↓

IC671 (4) 5V p-p ? — YES → CHECK IC671

IC671 (4) 5V p-p ? — NO ↓

CHECK SSP CARD

N100B (1) -200V ? — NO → CHECK D652

N100B (1) -200V ? — YES ↓

IC1381 (1) 8.7V ? — NO → CHECK
• IC1381
• IC1401 (14)
<BRIGHTNESS>

IC1381 (1) 8.7V ? — YES ↓

Q1380 (C) 12V ? — YES → CHECK Q1382

Q1380 (C) 12V ? — NO ↓

Q1380 (B) 11.4V ? — NO → CHECK
• Q1381
• SSP CARD (15)
<VIDEO OFF>

Q1380 (B) 11.4V ? — YES ↓

CHECK Q1380

INCORRECT H SIZE   SIGNAL : MODE -1

```
        Q550 (C)        YES    CHECK
        1100V P-P ?     ───►   • DY
                               • S CORECTION CIRCUIT
            │ NO
            ▼
        Q550 (B)        NO     CHECK
        12V P-P ?       ───►   • Q549
                               • IC580
            │ YES
            ▼
        T542 (P4)       YES    CHECK  Q550
        CORECT ?        ───►
            │ NO
            ▼
        IC850 (1)       YES    CHECK
        CORECT ?        ───►   • Q881
                               • 200V LINE
            │ NO
            ▼
        IC850 (12)      NO     CHECK
        3V ?            ───►   SSP CARD (36)
                               <H SIZE DAC>
            │ YES
            ▼
        CHECK  IC850
```
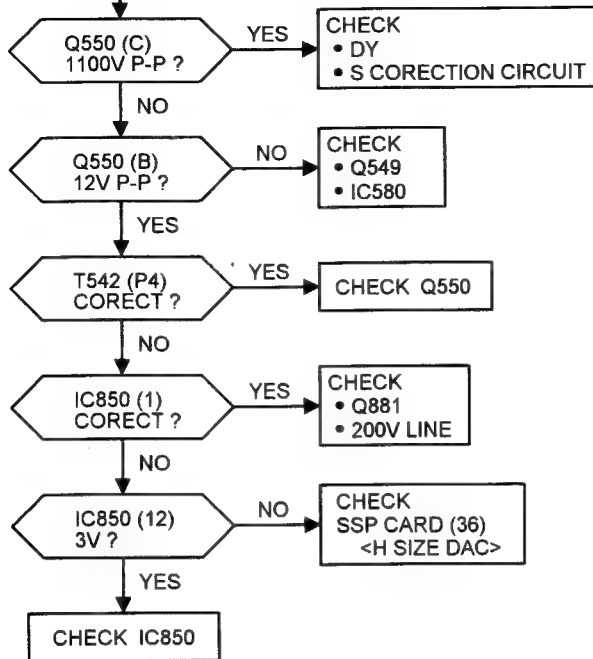
Voltage of T542 (P4)

	f H	Value
MODE - 1	93.8 kHz	126.5V
MODE - 2	31.5 kHz	42.2V
MODE - 3	46.9 kHz	62.5V
MODE - 4	60.0 kHz	78.8V
MODE - 5	68.7 kHz	89.6V
MODE - 6	64.0 kHz	82.5V
MODE - 7	80.0 kHz	101.9V
MODE - 8	87.5 kHz	116.9V

IC850 (1) OUTPUT

<MODE - 1 : 93.8 kHz>   <MODE - 2 : 31.5 kHz>   <MODE - 3 : 46.9 kHz>   <MODE - 4 : 60.0 kHz>

<MODE - 5 : 68.7 kHz>   <MODE - 6 : 64.0 kHz>   <MODE - 7 : 80.0 kHz>   <MODE - 8 : 87.5 kHz>
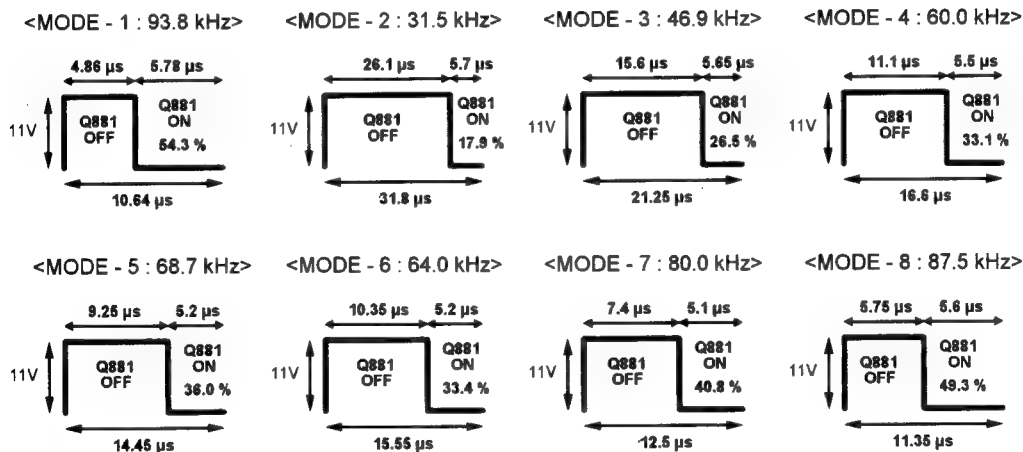
IC560 ①④⑨⑫ VOLTAGE

SIGNAL	f H	Pin #1	Pin #4	Pin #9	Pin #12	Total Cap.
MODE-1	93.8 kHz	0 V	0 V	0 V	0 V	0.30µF
MODE-2	31.5 kHz	0 V	12 V	12 V	12 V	3.28µF
MODE-3	46.9 kHz	12 V	0 V	12 V	0 V	1.27µF
MODE-4	60.0 kHz	12 V	12 V	0 V	0 V	0.81µF
MODE-5	68.7 kHz	0 V	12 V	0 V	0 V	0.66µF
MODE-6	64.0 kHz	12 V	12 V	0 V	0 V	0.81µF
MODE-7	80.0 kHz	12 V	0 V	0 V	0 V	0.45µF
MODE-8	87.5 kHz	0 V	0V	0 V	0 V	0.30µF

MAIN BOARD (Solder side)

MAIN BOARD (Parts side)

TNPH0173 1

CHASSIS NO.HV10S

PCB SIZE:327X246

– 45 –
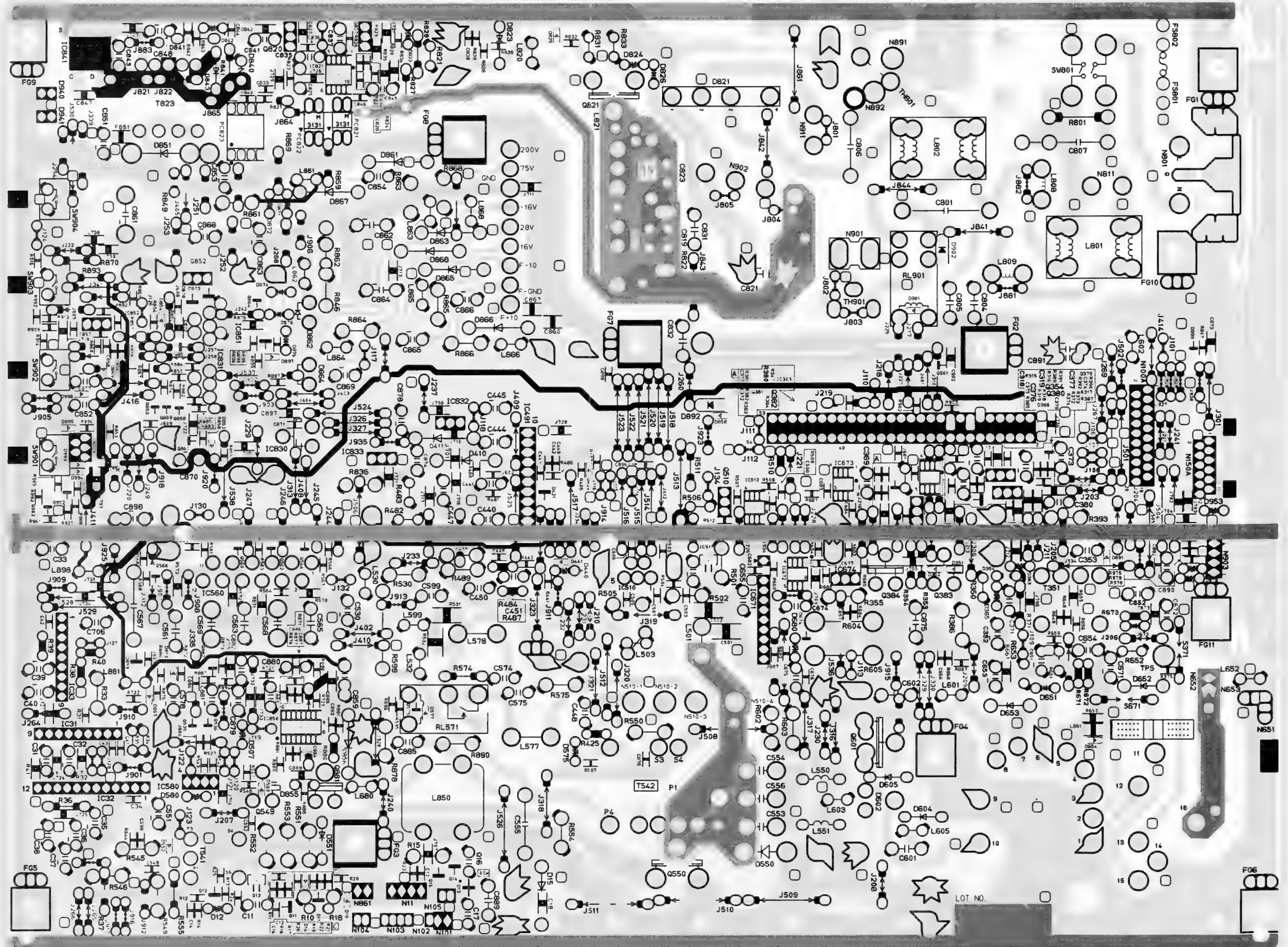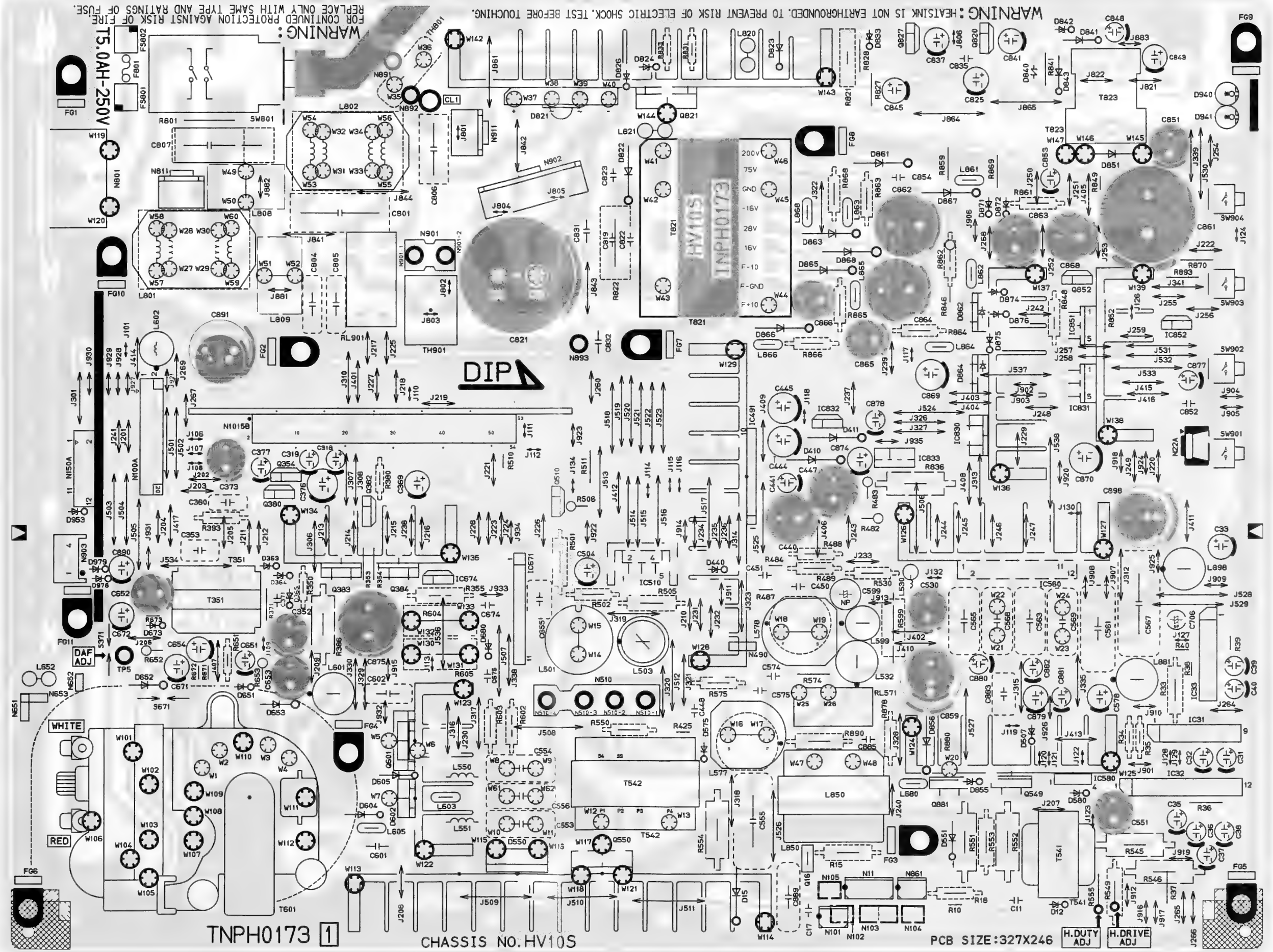
VIDEO BOARD (Solder side)
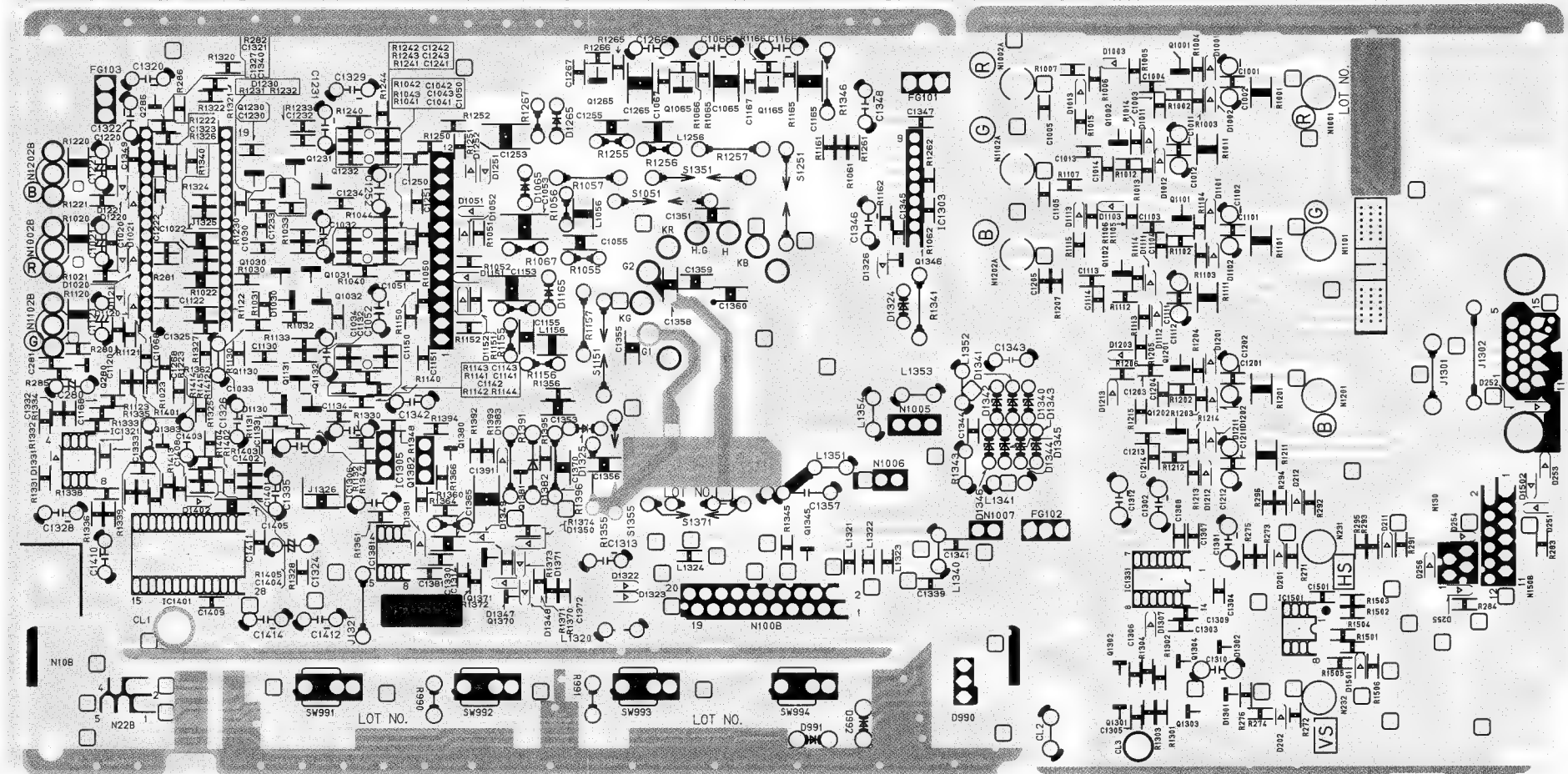
VIDEO BOARD (Parts side)
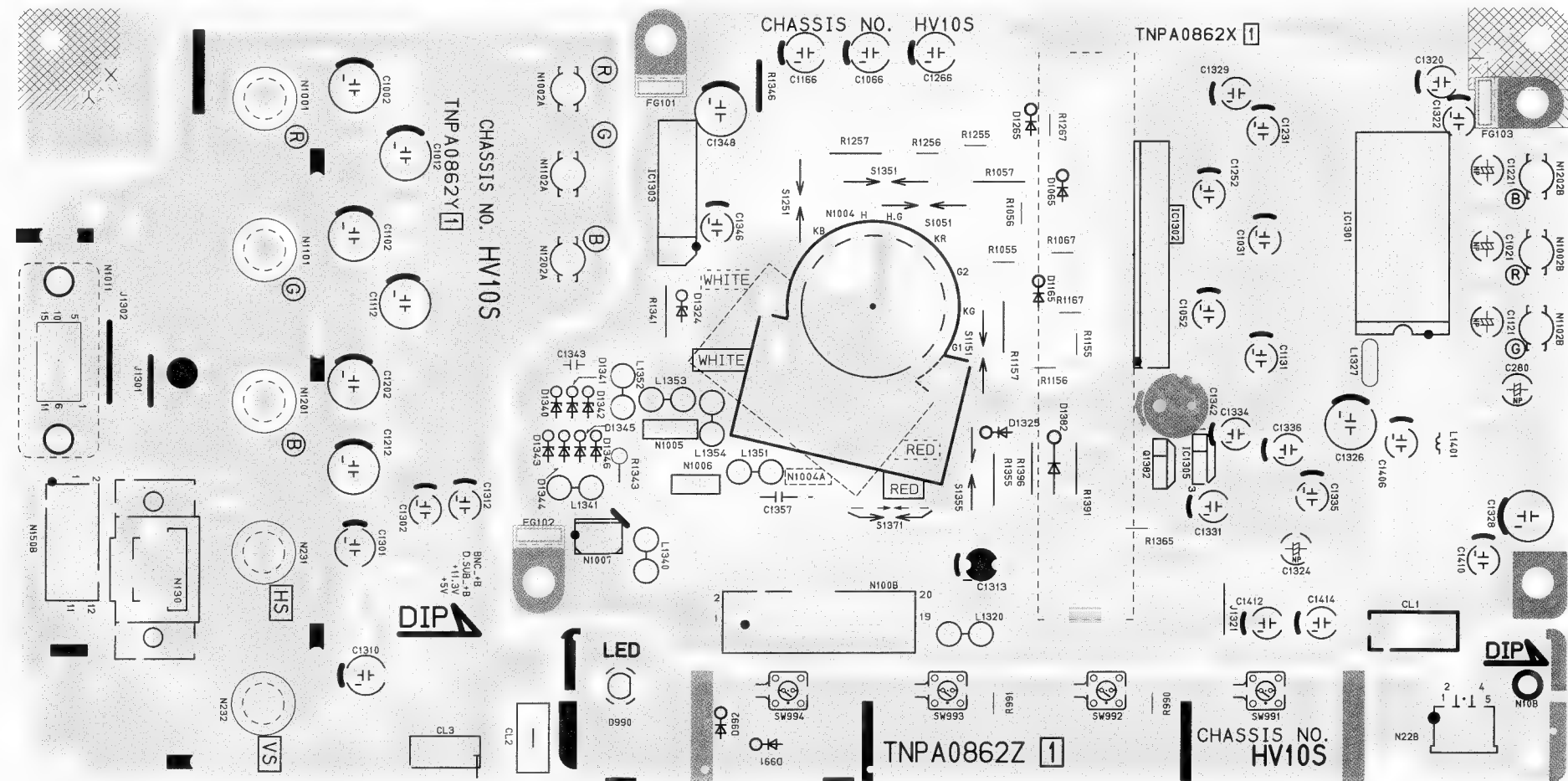
SCHEMATIC DIAGRAM

NOTES :

1. RESISTOR

All resistors are carbon 1/4W resistor, unless otherwise noted by the following marks.

Unit of resistance is ohm (Ω), (K = 1,000, M = 1,000,000)

○ :	Non Flammable	△ :	Solid
⊠ :	Metal Oxide	◎ :	Metal (Precision and high stability)
▢ :	Wire Wound	⬤ :	Thermistor
⊗ :	Fusible	⬤ :	Positive coefficient Thermistor
◪ :	Flame Proof Rectangular		

2. CAPACITOR

All capacitors are ceramic 50V capacitor, unless otherwise noted by the following marks.

Unit of capacitance is μF, unless otherwise noted.

⬛ :	Electrolytic	Ⓜ :	Polyester
Ⓣ :	Tantalum	ⓜ :	Metalized Polyester
NP :	Bipolar	⊠ :	Polypropylene
Ⓢ :	Polystyrene	△ :	Mica
⊗ :	Temperature Compensation	○ :	Ceramic
		◎ :	Ceramic (SL)

3. COIL

Unit of inductance is μH, unless otherwise noted.

4. VOLTAGE MEASUREMENT

Voltage is measured by a digital meter receiving normal signal.

5.

This schematic diagram is the letest at the time of printing and is subject to change without notice.

SERVICE NOTES :

This model has a section that does not share a common ground with the power supply section. The different sections are referred to as the HOT section and the COLD section in the precautions below.

1. Do not touch the HOT section and the COLD section at the same time. You may receive an electric shock.
2. Do not short the HOT section to the COLD section. This could blow the fuse or damage parts.
3. Never measure the HOT section and the COLD section at the same time when using tools such as oscilloscopes or multimeters.
4. Always unplug the unit before beginning any operation such as removing the chassis.

SCHEMATIC DIAGRAM FOR MODEL No.:

TX-D1F63NM

M-1F63TV

CHASSIS No.　　　: HV10S
CHASSIS FAMILY NO.: 21HV10S

BNC_RED　　N1001
BNC_GREEN　N1101
BNC_BLUE　　N1201
BNC_HS　　　N231
　　　　　　　N232
BNC_VS

N1011

D_SUB

RED
GREEN
BLUE
J1302
J1301

HS
VS/VCLK

Access
.bus
4　AB_SCL
3　SENSE
2　AB_SDA
1

D251 MAB056M
D252 MAB056M
D253#
D254# D255#
D256#

N130# (A-71505-0004)
TJSF07504

+11.3V

RED
GREEN
BLUE

IC1331
MM74HCT00M
VCC
GND

IC1501#
24LC21T.SN
N.C Vcc
N.C VCLK
N.C SCL
Vs   SDA

+5V

D1501
D1502#

R283 330
R284 330

R1504#
R1503#
R1502#
R1501#
R1505#
R1506#

Q1301 2SA1576A
Q1302 2SA1576A
Q1303 UN5211AI
Q1304 UN5211AI

D1301 MA142WA
D1302 MA142WA

+11.3V

RED
GREEN
BLUE

R1007 11.5 ±1%   N1002A RED
R1107 11.5 ±1%   N1102A GREEN
R1207 11.5 ±1%   N1202A BLUE

C1005#
C1105#
C1205#

TNPA0862Y

N150B
VCLK / +11.3V / HS / [IIIC_SCL] / VS / [IIS_SDA] / SIG.SEL / AB_SDA / SENSE / +5V_1 / AB_SCL

N150A
1 2 3 4 5 6 7 8 9 10 11 12

TNPH0173

3.2V0-p
0.7Vp-p

2.5V0-p
0.7Vp-p

4.6Vp-p
5.0Vp-p

5.0Vp-p
0.7Vp-p

- 48 -

TNPA0862X

TNPA0892

IC101
MBCU32110A_102
Super Signal Processor - Lite

N1015B

TNPA0862Z

TNPH0173

HS
VCLK
VS
AB_SDA
SIGNAL_SEL
SENSE
CLAMP
AB_SCL
BLANKING
IIC_SDA
OSD_VS
IIC_SCL
OSD_HS
C_SYNC
VIDEO_OFF
V_DAF
DEGAUSS
H_DAF
SUSPEND
POWER_OFF

C_SEL4
X_RAY_OFF
C_SEL3
EHT_DRIVE
C_SEL2
EHT_DAC
C_SEL1
H_FBP
+12V
H_DRIVE
-5V
H_B_OFF
H_SIZE_DAC
+5V_1
H_DRIVE_B_DAC
KEY2
V_SAW
KEY1
V_FBP
POWER_TRG
V_POSI_DAC
RESET
V_PCC
POWER_OFF
VPARA
SUSPEND
H_CENT_DAC
(H_CONV_DAC)
TILT_DAC
(PURITY_DAC)
(V_CONV_DAC)

(V_CONV_DAC #)
(PURITY_DAC #)
TILT_DAC
(H_CONV_DAC #)
H_CENT_DAC
SUSPEND
VPARA
POWER_OFF
V_SAW
RESET
V_POSI_DAC
POWER_TRG
V_FBP
V_PCC
H_DRIVE_B_DAC
H_SIZE_DAC
H_B_OFF

+5V_1
-5V
H_DRIVE
+12V
H_FBP
C_SEL1
EHT_DAC
C_SEL2
EHT_DRIVE
C_SEL3
X_RAY_OFF
C_SEL4

N903
GND
SCK
SO
SI
COM
I/F

5.0Vp-p
3.3V0-p
1.0Vp-p
2.2Vp-p
2.1V0-p
0.6V
5.0V
3.0vp-p
12Vp-p
5.2V0-p
2.4Vp-p
3.5V0-p
2.2Vp-p

R988 1K
R920#
R961 0
Q903 UN5211AI
Q902 UN5111AI
R905 330
R906 330
R909 5.6K
R913 5.6K
R992 0
R993 0
KEY2
KEY1
R978 100
R979 100
R975 100

D991# D992#
D990 SML1816W
AMBER
GREEN
SW991 EVG33405R
R990 10K 1/4W
R991 10K 1/4W
N22B
N22A
SW994 EVQ33405R
N10B
SW992 EVQ33405R
SW993 EVQ33405R

D993 MA8056H
D994 MA8056H
D995 MA8056H
D996 MA8056H
D941# SLP6118
D940# SLP3118
R914# 5.6K
R916# 5.6K
SW901# EVQPB005K
SW902# EVQPB005K
SW903# EVQPB005K
SW904# EVQPB005K

D979 MA4056NM
D978 MA4056NM
D953 MA4056NM

GND
-52-

TNPH0173

-54-

TNPH0173

• NO CHARACTERS
• MISSING ONE COLOR

EXAMPLE : GREEN MISSING
SIGNAL PORT : 15P D-SUB

CRT KG 75 V 0-p ? — YES → NO RASTER
↓ NO

IC1341 (4) 58 V 0-p ? — YES →
↓ NO

IC1341 (2) 1.4 V 0-p ? — YES → VIDEO SIGNAL / CHECK IC1341
↓ NO

Q1123 (B) 2.9 V p-p ? — YES → VIDEO SIGNAL / CHECK Q1121 , Q1122 Q1123
↓ NO

IC1302 (3) 0.6 V p-p ? — YES →
↓ NO

Q1301 (C) 10.9 V ? — YES → VIDEO SIGNAL from PC / CHECK INPUT SIGNAL
↓ NO

Q1303 (B) 4.9 V ? — YES → D - SUB / BNC / CHECK Q1301 , Q1303
↓ NO

IC1331 (9,10) 4.9 V ? — YES → CHECK SIG. SELECT (D-SUB / BNC)
↓ NO

CHECK IC1331

Q1152 (C) 78 V 0-p ? — YES → CHECK D1152
↓ NO

IC1307 (6) 78 V ? — YES → CHECK Q1152
↓ NO

IC1307 (3) 5.1 V ? — NO → LOW LIGHT / BRIGHT / CHECK IC1306
↓ YES

IC1307 (9) 120 V ? — NO → CHECK 120V Line
↓ YES

CHECK IC1307

CLAMP
NO →
IC1302 (18) 4.8 V p-p ? — YES ↓
↓ YES

IC1302 (20) 0.7 V ? — NO → (BLK) CHECK IC1309
↓ YES

IC1302 (4) 3.2 V ? — NO → G - SUB CONT CHECK IC1306
↓ YES

IC1302 (1) 4.9 V p-p ? — NO → SELECT CHECK IC1304
↓ YES

IC1302 (17) 4.8 V ? — NO → CONTRAST CHECK IC1306
↓ YES

CHECK IC1302

IC1308 (1,2) 4.5 V p-p ? — NO → CHECK IC280
↓ YES

CHECK IC1308

NO RASTER

CRT G1 -48 V 0-p? — NO →
↓ YES

CRT G2 500~550 V ? — NO → CHECK R395 , FBT
↓ YES

CRT KG,KR,KB 75 V 0-p ? — NO → NO CHARACTERS
↓ YES

CRT EHT 27 KV ? — YES → CHECK CRT
↓ NO

FBT (9) 127.5 V ? — NO → CHOPPER OUT →
↓ YES

Q690 (G) 11.4 V p-p ? — YES → CHECK Q690 , FBT
↓ NO

Q644 (B) 12.2 V p-p ? — YES → CHECK Q644 , Q645
↓ NO

CHECK IC850   EHT DRIVE PULSE

NO →
Q267 (E) 2 V p-p ?
↓ YES

Q381 (B) 11.5 V ? — NO → CHECK Q383 , Q384 , Q385
↓ YES

N1003 (18) -200 V ? — NO → G1 BIAS CHECK D604 , FBT
↓ YES

CHECK Q381 D380 , D381 , D383

Q267 (B) 2.2 V p-p ? — YES → CHECK Q267
↓ NO

Q260 (B) 2.6 V p-p ? — YES → CHECK Q260
↓ NO

Q225 (B) 0.8 V p-p ? — NO → CHECK H PULSE LINE
↓ YES

CHECK Q228 , Q225

Q680 (S) 210 V ? — NO → CHECK 195V Line
↓ YES

Q680 (G) 200 V 0-p ? — NO → CHOPPER DRIVE PULSE CHECK IC850
↓ YES

CHECK Q680

O.S.D. DOES NOT WORK

EXAMPLE : MISSING GREEN.
CONDITION : OSD ON

IC1302 (5) 4.7 V p-p ? — YES →
↓ NO

IC1304 (5) 4.7 V p-p ? — NO → OSD H SYNC CHECK Q1330 , H PULSE
↓ YES

IC1304 (10) 4.7 V p-p ? — NO → OSD V SYNC CHECK Q1331 , V FBP
↓ YES

IC1304 (7,8) 4.7 V p-p ? — NO → OSD ACTIVE CHECK SCL,SDA Line
↓ YES

CHECK IC1304

IC1302 (1) 4.9 V p-p ? — NO → SELECT (VIDEO / OSD) CHECK IC1304
↓ YES

CHECK IC1302

NO POWER

T801 (1) VOLTAGE	
AT AC100V	121V
AT AC120V	148V
AT AC220V	270V
AT AC240V	312V

C861(210V line) 210 V ?
- YES →
- NO ↓

T801 (1) CORRECT ?
- NO →
- YES ↓

IC820 (4) 26 V ?
- NO →
- YES ↓

IC820 (8) 0.8 V ?
- NO → CHECK R811 , R812 , R819
- YES ↓

CHECK
IC820 , D823
D861 , D862 , D863
D864 , D865 , D868

D821 (2)(3) AC CORRECT ?
- YES → CHECK D821 , T801
- NO ↓

CHECK
AC FUSE
AC INPUT

Q820 (C) CORRECT ?
- NO → CHECK R806 , R827
- YES ↓

CHECK Q820

Q820 (C) VOLTAGE	
AT AC100V	125V
AT AC120V	142V
AT AC220V	250V
AT AC240V	298V

ABNORMAL POWER SAVER

IC901 (16) = SUSPEND
IC901 (17) = POWER OFF

SIGNAL INPUT PORT : 15P D-SUB

Please refer to repair hints
for Power Save on page 64.

IC901 (16) 0 V / IC901 (17) 4.9 V ?
- YES → CHECK POWER SAVER
- NO ↓

H. SYNC

IC901 (29) 4.9 V p-p ?
- NO →
- YES ↓

V. SYNC

IC901 (27) 4.9 V p-p ?
- NO →
- YES ↓

CHECK IC901

IC281 (5) 4.6 V p-p ?
- YES → CHECK IC281
- NO ↓

IC280 (6) 2.3 V 0-p ?
- YES → CHECK IC280
- NO ↓

IC1331 (12) 4.9 V p-p ?
- YES → CHECK IC1331
- NO ↓

5V DC : CHECK SIG. SELECT
0V : CHECK INPUT SIGNAL

IC281 (2) 3.4 V p-p ?
- YES → CHECK IC281
- NO ↓

IC280 (8) 2.3 V 0-p ?
- YES → CHECK IC280
- NO ↓

IC1331 (2) 4.9 V p-p ?
- YES → CHECK IC1331
- NO ↓

5V DC : CHECK SIG. SELECT
0V : CHECK INPUT SIGNAL

DEFECTIVE HORIZONTAL DEFLECTION CIRCUIT

CONDITION : 1600 × 1200 (fH 93.75kHz)

Q550 (C) 1070 V p-p ? — YES → CHECK DY, Q560~Q565

NO ↓

T542 (P4) 130 V 0-p ? — NO → H DEF. +B & VPCC OUT

YES ↓

Q550 (B) 11.6 V p-p? — YES → H DEF. DRIVE / CHECK Q550

NO ↓

TP1
T541 (P1) 19.8 V ? — NO →

YES ↓

T541 (P2) 47 V p-p ? — YES → H DEF. DRIVE / CHECK T541,R551,R552

NO ↓

Q549 (G) 5.4 V p-p ? — YES → H DEF. DRIVE / CHECK Q549

NO ↓

CHECK IC501 , R547

TP6
Q719 (C) 121 V ? — YES → CHOPPER OUT / CHECK Q719 , R718

NO ↓

Q855 (D) 200 V p-p ? — YES → CHOPPER OUT / CHECK L850 , R885

NO ↓

Q855 (S) 210 V ? — NO → CHOPPER +B / CHECK 210V Line

YES ↓

Q855 (G) 200 V 0-p ? — NO → CHOPPER DRIVE / CHECK IC850

YES ↓

CHECK Q855

IC582 (3) 28.5 V ? — NO → CHECK 28V Line

YES ↓

IC582 (1) 4.8 V ? — NO → H DRIVE +B CONTROL / CHECK IC901

YES ↓

CHECK IC550

Value of TP1 and TP6 for each mode

MODE	TP1	TP6
MODE - 1 (f H 93.8kHz)	19.8 V	127.5 V
MODE - 2 (f H 31.5kHz)	23.7 V	74.3 V
MODE - 3 (f H 46.9kHz)	23.0 V	53.5 V
MODE - 4 (f H 60.0kHz)	22.3 V	70.8 V
MODE - 5 (f H 68.7kHz)	22.1 V	83.4 V
MODE - 6 (f H 63.3kHz)	22.3 V	75.4 V
MODE - 7 (f H 80.0kHz)	20.8 V	101.3 V
MODE - 8 (f H 87.5kHz)	20.5 V	115.6 V

INCORRECT H. POSITION CONTROL

CONDITION : 1600 × 1200 (fH 93.75kHz)

RASTER POSITION CENTER ? — YES →

NO ↓

TURN VR580 3.9 V ~ 7.3 V ? — YES → CHECK Q584 , Q585

NO ↓   Q584(B) - L850(10)

CHECK L850 , F 10 line VR580

IC501 (25) 2.3 V ? — YES → CHECK IC501

NO ↓

CHECK IC901   (#8) H POSI
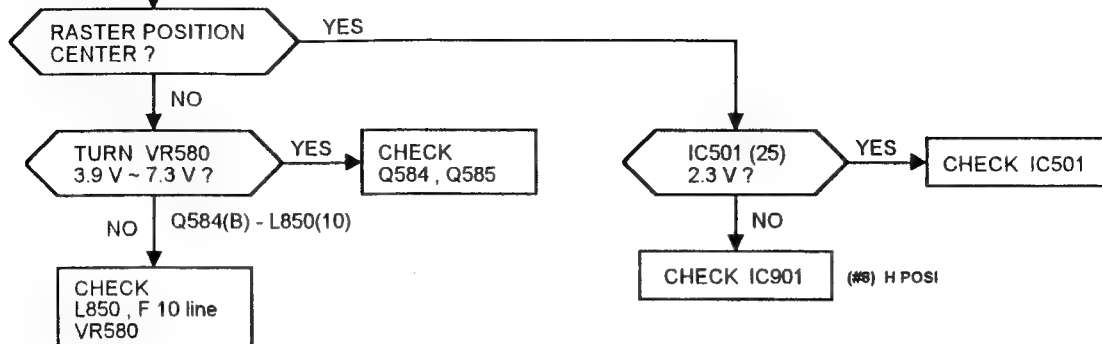
INCORRECT SCREEN SIZE

CONDITION : 1600 × 1200 (fH 93.75kHz)

V SIZE OK ? — YES → DEFECTIVE H. DEF. CIRCUIT

NO ↓

H SIZE OK ? — YES → CHECK V SIZE CONTROL

NO ↓

FBT (9) 127.5 V ? — YES → CHECK FBT

NO ↓

IC850 (13) CORRECT ? — YES → CHECK Q680

NO ↓

IC850 (16) 2.3 V ? — YES → CHECK IC850

NO ↓

CHECK IC901   (#34) EHT

IC506 (7) 3.1 V ? — YES → CHECK IC501   (#3) V POSI

NO ↓

IC506 (5) 3.1 V ? — YES → CHECK IC506

NO ↓

CHECK IC901   (#9) V SIZE
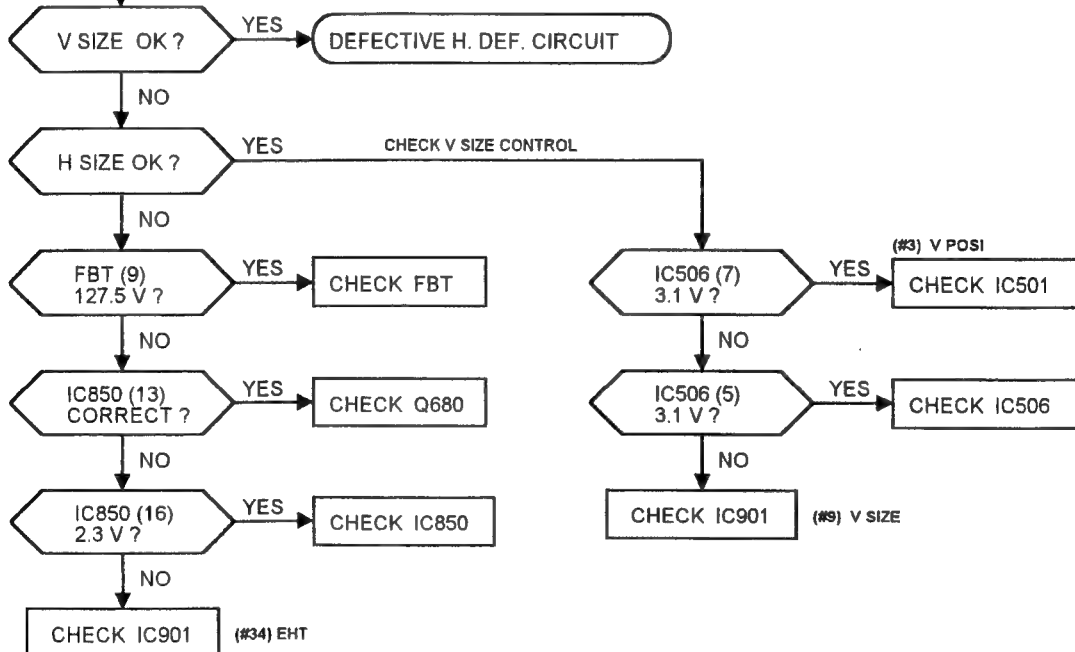
IC850 (13) Wave

IC850 (20) [2FH]	
30~40 kHz	HIGH
40~95 kHz	LOW

When Low level is applied to 20 pin, IC850 will supply ×2 f H signal to Q680 and Q690.

(IC850 13 & 23 pin)

<MODE - 1 : 93.8 kHz>
4.8 μs
10V   Q680 OFF   Q680 ON   55 %
10.6 μs

<MODE - 2 : 31.5 kHz>
11.5 μs
10V   Q680 OFF   Q680 ON   28 %
15.9 μs

<MODE - 3 : 46.9 kHz>
17 μs
10V   Q680 OFF   Q680 ON   20 %
21.3 μs

<MODE - 4 : 60.0 kHz>
12.3 μs
10V   Q680 OFF   Q680 ON   25 %
16.6 μs

<MODE - 5 : 68.7 kHz>
10.1 μs
10V   Q680 OFF   Q680 ON   31 %
14.6 μs

<MODE - 6 : 63.3 kHz>
11.4 μs
10V   Q680 OFF   Q680 ON   28 %
15.8 μs

<MODE - 7 : 80.0 kHz>
7.6 μs
10V   Q680 OFF   Q680 ON   39 %
12.5 μs

<MODE - 8 : 87.5 kHz>
6.2 μs
10V   Q680 OFF   Q680 ON   46 %
11.4 μs

H. SYNC DOES NOT HOLD

H SYNC 30 ~ 95 kHz ? — YES → CHECK INPUT SIGNAL

↓

CHECK IC501
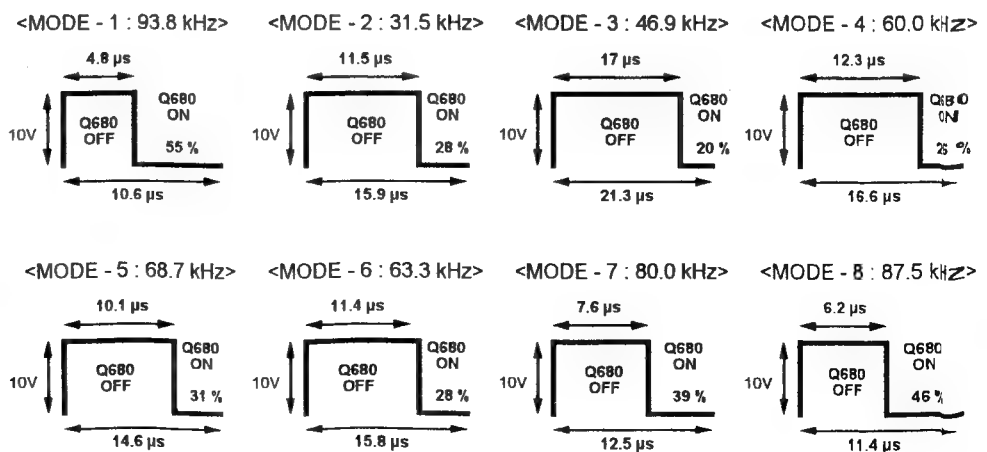
V. SYNC DOES NOT HOLD

V SYNC 50 ~ 160 Hz ? — YES → CHECK INPUT SIGNAL

↓

CHECK IC501
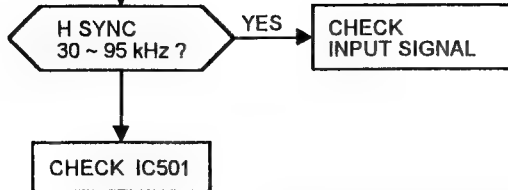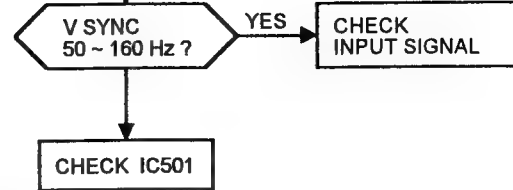
If no horizontal and/or vertical sync from PC, then the power save circuit becomes active.

INCORRECT V.PCC

CONDITION :1600 × 1200 (fH 93.75kHz)

↓

Q717 (B) 0.6 V p-p ? — YES → CHECK Q717

↓ NO

IC581 (5) 0.3 V p-p ? — YES → CHECK IC581

↓ NO

IC501 (1) 2.5 V ? — NO → (#7) V PCC C / CHECK IC901

↓ YES

IC501 (2) 2.5 V ? — NO → (#6) TRAPEZOID / CHECK IC901

↓ YES

IC501 (3) 2.3 V ? — NO → (#5) V PCC G / CHECK IC901

↓ YES

IC501 (4) 2.3 V ? — NO → (#4) PARALLELO / CHECK IC901

↓ YES

IC501 (5) 2.5 V ? — NO → (#44) V PCC BAL / CHECK IC901

↓ YES

CHECK IC501
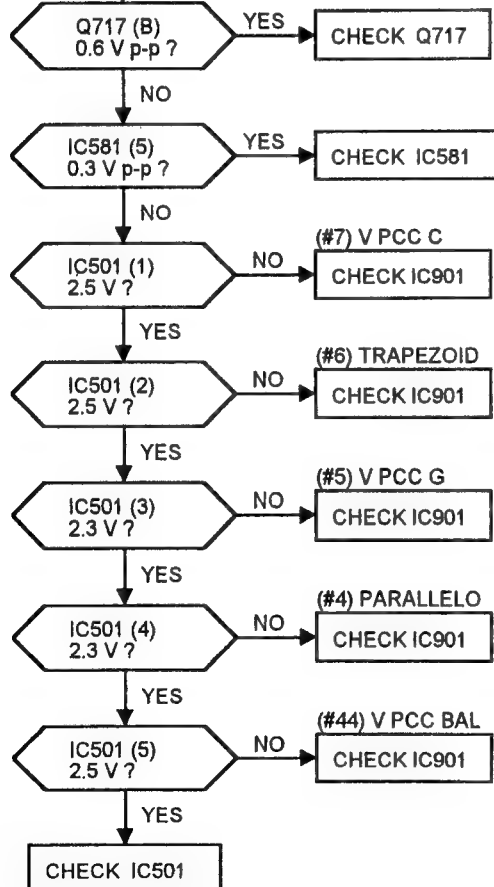
BRIGHT HORIZONTAL LINE APPEARS ON THE SCREEN

↓

IC490 (5) 56 V p-p ? — YES → CHECK DY

↓ NO

IC490 (1) 1.2 V ? — YES → CHECK IC490

↓ NO

CHECK IC501
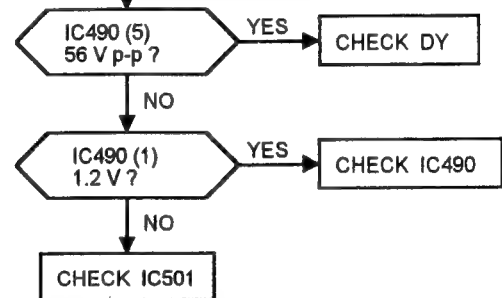
INCORRECT V. POSITION CONTROL

↓

IC581 (3) 2.1 V ? — NO → (#3) V POSI / CHECK IC901

↓ YES

IC581 (1) 2.1 V ? — NO → CHECK IC581

↓ YES

CHECK IC490
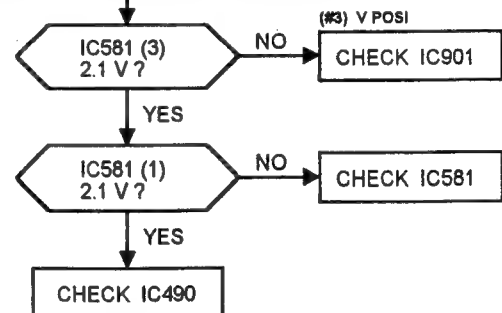
ABNORMAL POWER INDICATOR

D940 (LED) Green Red L/H

Q901 ← 5V

Q903 ← SUSPEND

H/L   L/H
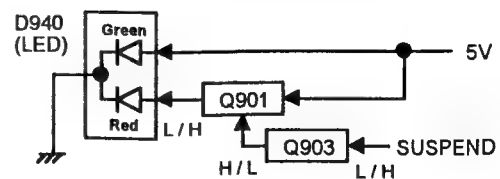
HS	VS	SUSPEND	COLOR
ON	ON	LOW	GREEN
OFF	ON	HIGH	YELLOW
ON	OFF	HIGH	YELLOW
OFF	OFF	HIGH	YELLOW

REPAIR HINTS FOR POWER SAVE (HV8SA CHASSIS)

[1] Q855 (H DEF. CHOPPER OUT)
[2] Q680 (EHT CHOPPER)
[3] Q371 (V DAF OUT)

[4] IC1301 (- 5V REGULATOR)
[5] IC490 (V OUT)

[6] IC1331 (SIGNAL SELECT)
[7] IC1306 (DAC)
[8] IC901 (MICRO CONTROLLER)
[9] IC462 (MOIRE REDUCTION)
[10] IC1501 (DDC)
[11] IC1304 (OSD PATTERN GEN.)
[12] IC280 (SYNC SEPARATOR)
[13] IC281 (HS & VS WAVEFORM)
[14] IC1308 (SIGNAL SELECT)

[15] IC1341 (VIDEO OUT)
[16] Q353,Q354 (H DAF OUT)
[17] IC581 (V PCC & V POSI CONTROL)
[18] IC582 (H DRIVE B REGULATOR)
[19] IC462 (MOIRE REDUCTION)
[20] IC490 (V OUT)
[21] IC351 (ABL OUT)
[22] IC901 (MICRO CONTROLLER)
[23] IC501 (H.V. CONTROLLER)
[24] IC850 (CHOPPER DRIVE PULSE GEN.)
[25] IC635 (CHOPPER DRIVE CONTROL)
[26] Q644,Q645 (EHT DRIVE)
[27] IC101 (TILT CONTROL)
[28] IC301 (H DAF PARABOLIC GEN.)
[29] IC302 (H DAF AMP)
[30] Q379 (V DAF OUT)
[31] Q101,Q103 (TILT OUT)

210 V   [1] [2] [3]

-16 V   [4] [5]

RESET

5 V   [6] [7] [8] [9] [10]
       [11] [12] [13] [14]

D861

D868

IC833

POWER LINE

CONTROLED BY P.S.M.

SUSPEND

70V   D862   Q834
28V   D863
16V   D864   Q842
7.5V   D865
       Q841

Q834   Q833
Q847   Q848
IC835   12V
Q843   Q844
IC837   Q840

70 > 0 > 0 V   [15] [16]
28 > 0 > 0 V   [17] [18] [19]
16 > 0 > 0 V   [20]
12 > 0 > 0 V   [21] [22] [23] [24] [25]
                [26] [27] [28] [29] [30]
7.5 > 0 > 0 V   [31]
6 > 4 > 0 V   (CRT HEATER)

NORMAL > SUSPEND > POWER OFF

POWER OFF

– 63 –

— Important Safety Notice —

Components identified by the International symbol ⚠ have special characteristics important for safety.
When replacing any of these components use only manufacture's specified parts.

RESISTOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Carbon	F	± 1%
F	Fuse	J	± 5%
M	Metal Oxide	K	± 10%
S	Solid	M	± 20%
W	Wire Wound	G	± 2%

Example ERD25TJ104 (C) 100K (J) 1/4W
Part No. — Description

CAPACITOR

PART NAME & DESCRIPTION			
TYPE		ALLOWANCE	
C	Ceramic	C	± 0.25pF
E	Electrolytic	D	± 0.5pF
P	Polyester	F	± 1pF
S	Styrol	J	± 5%
T	Tantalum	K	± 10%
PP	Polypropylene	L	± 15%
		M	± 20%
		P	+100% – 0%
		Z	+80% – 20%

Example: ECKF1H103ZF (C) 0 01µF (Z) 50V
Part No. — Description

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
		CABINET & MAIN PARTS	⚠ 14	TBMD162	MODEL NAME LABEL<-SW>
⚠ 1	TTYA03201-7	ESCUTCHEON<-M>	⚠ 14	TBMD163	MODEL NAME LABEL<-U>
⚠ 1	TTYA03206-5	ESCUTCHEON<-E,-G,-SW,-U>	⚠ 14	TBMD187	MODEL NAME LABEL<-E>
⚠ 2	TZTKU0100CQ	REAR COVER W/MODEL LABEL <-M>	⚠ 16	TBXA03401	KNOB(POWER SWITCH)
⚠ 2	TZTKU0100DA	REAR COVER W/MODEL LABEL <-G>	15	TBXA04401	POWER SWITCH SHAFT
⚠ 2	TZTKU0100DB	REAR COVER W/MODEL LABEL <-SW>	⚠ 17	TBXA14101	KNOB(CONTROL)
⚠ 2	TZTKU0100DC	REAR COVER W/MODEL LABEL <-U>		TESA012	SPRING(CRT EARTH)
⚠ 2	TZTKU0100DF	REAR COVER W/MODEL LABEL <-E>		TESA046	SPRING(CRT EARTH,BOTTOM)
	TKGF5024	LED LENS	18	TESD008	SPRING(POWER SWITCH)
⚠ 3	TKSG001-A01	BOTTOM CABINET<-M>		TESH017	FBT SPRING
⚠ 3	TKSG001-A06	BOTTOM CABINET <-E,-G,-SW,-U>		TES8586	EARTH SPRING
⚠ 4	TKSG004-B01	BASE CABINET<-M>	⚠	TMME023	TILT COIL CLAMPER(BIG)
⚠ 4	TKSG004-B02	BASE CABINET <-E,-G,-SW,-U>	⚠	TMME035	DEGAUSS COIL CLAMPER,SIDE
⚠ 5	TKKX5010	CENTER POST<-M>	⚠	TMME052	LEAD CLAMPER(SMALL)
⚠ 5	TKKX5010-1	CENTER POST<-E,-G,-SW,-U>	⚠	TMME067	DEGAUSS COIL CLAMPER
6	TKKX5011-1	SPACER RING	⚠	TMM15404-1	SPACER RING
⚠	TKK859745-9	CONNECTOR COVER	⚠	TMM16452	TILT COIL CLAMPER
7	TUAA06401-1	BOTTOM PLATE	⚠	TMM6463	CLAMPER
	TSAA3004	RADIATOR		TMM81499	PUSH RIVET
8	TUCC5083-1	SHIELD CASE(CRT)R		TMM85576-1	CRT RUBBER
9	TUCC5084-1	SHIELD CASE(CRT)L	⚠ 19	TMM85586	RUBBER(WEDGE)
10	TUCC5085-1	SHIELD CASE BRACKET	⚠	TMX13418	PCB SPACER
11	TUCC5115	SHIELD CASE	⚠	TMKG035	SPONGE
12	TUCC5116-2	SHIELD CASE(REAR)	⚠	TMKG067	RUBBER CUSHION(BIG)
⚠ 13	TBLB3002-A01	PEDESTAL<-M>	⚠ 20	TMK84990	SET LEG
⚠ 13	TBLB3002-A06	PEDESTAL<-E,-G,-SW,-U>	⚠	TMK85572	FERRITE STICK
⚠ 14	TBMD061	MODEL NAME LABEL<-M>		TQFX040	CONDUCTIVE SHEET
⚠ 14	TBMD161	MODEL NAME LABEL<-G>		THT1028	SCREW(FOR CRT)
				THT1069	SCREW(FOR SHIELD CASE)
				XTB4+12J	SCREW
				XTN5+16LY	SCREW
				XTV3+10A	SCREW
				XTV3+20J	SCREW
				XTV3+8A	SCREW
				XYA4+EF8	SCREW
				XYA4+EJ10	SCREW
				XYE3+EJ10	SCREW

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
⚠ 21	M51KYY540X	COLOR PICTURE TUBE	IC103	TVSA0066	IC
	TNPA0892-21	PC BOARD W/COMPONENT (SSP/TCO)	IC104	24LC08BTISN	IC
			IC106	LF347MX	IC
⚠ 23	TNPH0173-21	PC BOARD W/COMPONENT (MAIN)	IC107	LF347MX	IC
			IC111	TC74HC14AF	IC
24	TXANP31F63NM	PC BOARD W/COMPONENT (VIDEO INPUT/CRT/KBD)	IC120	NJM2904M	IC
			IC303	LF353MX	IC
⚠ 25	MEY51LHB4	DEFLECTION YOKE	IC491	LA7875	IC
⚠ 26	TLCB006-1	CONVERGENCE COIL	IC510	LA6500-FA	IC
⚠ 27	TSPA026-6	DEGAUSS COIL	IC511	AN8025M	IC
⚠ 28	TSPF004-2	TILT COIL	IC512	NJM2904M	IC
	TSXL030	FLAT CORD(5P)	IC580	AN6531	IC
⚠	TSXL055	FLAT CORD(20P)	IC671	TVSA0216	HYBRID IC
⚠	TSXX075	SCREEN LEAD(RED)	IC672	NJM2904M	IC
⚠	TSXX076	FOCUS LEAD(RED)	IC673	NJM2904M	IC
⚠	TSXX077	FOCUS LEAD(WHITE)	IC674	TA76431S	IC
	TSX4515-3	SIGNAL CORD	IC821	M62281FP	IC
⚠	TSXA023	POWER CORD<-M>	IC830	M5F7812L	IC
⚠	TSX8484	POWER CORD<-E,-G>	IC831	SI-3025F	HYBRID IC
⚠	TSX8492	POWER CORD<-SW>	IC832	AN78L05	IC
⚠	TSX8493	POWER CORD<-U>	IC833	AN79M05F	IC
⚠	TSXX053	4P CONNECTOR ASSY	IC841	MIPO223SCL	IC
⚠	TXA3A11F63NM	CRT EARTH LEAD	IC850	M62501FP	IC
	TSMA003	MAGNET	IC851	L78MR05	IC
	T4F31519Q	POLYESTER TAPE(50M)	IC852	TL431AIZ	IC
	T4F72425Q	COTTON TAPE(55M)	IC1301	M52741SP700	IC
	T4F90240	MAIRA TAPE	⚠ IC1302	VP3628	HYBRID IC
	TPCA54001	OUTER CARTON<-M>	IC1303	STK190-110	HYBRID IC
	TPCA58901	OUTER CARTON <-E,-G,-SW,-U>	IC1305	TA76431S	IC
	TXAPD1D1F63T	FILLER(TOP)<-E,-G,-SW,-U>	IC1306	L78M09T	IC
	TXAPD1D2162T	FILLER(TOP)<-M>	IC1321	NJM2904M	IC
	TXAPD3D2162B	FILLER(BOTTOM)	IC1331	MM74HCT00MX	IC
	TPE894011-2	SET COVER	IC1381	NJM2904M	IC
	TQE8513-2	FUN BAG COVER	IC1401	LSC4385DW2	IC
	TQE8660	BAG(FOR REG. CARD)<-M>			TRANSISTORS
	TQBE0151	INSTRUCTION BOOK(TCO95) <-E,-G,-SW,-U>	IC560	SLA5041	TRANSISTOR
⚠	TQBE0198	INSTRUCTION BOOK<-M>	Q11	2SK1848	TRANSISTOR
⚠	TQBE0225	INSTRUCTION BOOK <-E,-G,-SW,-U>	Q12	2SD602R	TRANSISTOR
			Q13	2SC4080DETD	TRANSISTOR
			Q14	2SC4412-45	TRANSISTOR
	TQD1712010	PASS CARD	Q15	2SA1682-45	TRANSISTOR
	TQDE18002-1	WARRANTY CARD<-E>	Q106	2SC3938R	TRANSISTOR
	TQD8515106-3	WARRANTY CARD<-M>	Q107	IMH11A	TRANSISTOR
	TQD8518073-3	WARRANTY CARD<-U>	Q108	IMH11A	TRANSISTOR
			Q110	2SC3938R	TRANSISTOR
	TQD8515100	REGISTRATION CARD<-M>			
	TQFA360	WARNING LABEL<-M>	Q280	2SA1739R	TRANSISTOR
	TQFA471	TCO95 LABEL<-E,-G,-SW,-U>	Q286	2SC3938R	TRANSISTOR
	TQFA532	PTB LABEL(INNER)<-M>	Q379	2SC4081R	TRANSISTOR
	TQF83825-6	SERIAL NO. LABEL	Q380	2SC4620V25	TRANSISTOR
			Q381	2SA1576A	TRANSISTOR
	TQF85363-2	CARTON LABEL<-G>			
	TQF85363-3	CARTON LABEL<-SW>	Q382	2SC1473AR	TRANSISTOR
	TQF85363-4	CARTON LABEL<-U>	Q383	2SD1264PLB	TRANSISTOR
	TQF85363-8	CARTON LABEL<-E>	Q384	2SB940PLB	TRANSISTOR
⚠	TQF86550	EARTH CAUTION LABEL<-SW>	Q510	2SC1473AR	TRANSISTOR
			Q535	2SD1820AR	TRANSISTOR
⚠	TQF86608	EARTH CAUTION LABEL <-E,-G,-M>	Q536	2SB1219AQ	TRANSISTOR
			Q549	2SK2588	TRANSISTOR
	I.C		Q550	2SC5423002FD	TRANSISTOR
			Q560	UN5211AI	TRANSISTOR
IC31	AN5768	IC	Q562	UN5211AI	TRANSISTOR
IC101	CU32110A-102	IC			
IC102	TVRB030-1	IC	Q564	UN5211AI	TRANSISTOR

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
Q566	UN5211AI	TRANSISTOR	D212	MA8056M	DIODE
Q575	2SC4081R	TRANSISTOR	D251	MA8056M	DIODE
Q601	2SK2761-01MR	TRANSISTOR	D252	MA8056M	DIODE
Q820	2SA733Q	TRANSISTOR	D351	MA111	DIODE
Q821	2SK2148	TRANSISTOR	D352	MA111	DIODE
Q827	2SA733Q	TRANSISTOR	D363	MA4390NM	DIODE
Q853	UN5211AI	TRANSISTOR	D364	MA4390NM	DIODE
Q858	2SD1949Q	TRANSISTOR	D365	MA4390NM	DIODE
Q859	UN5211AI	TRANSISTOR	D366	MA199	DIODE
Q860	2SC3938R	TRANSISTOR	D410	ERA1502	DIODE
Q864	2SB1219AQ	TRANSISTOR	D411	ERA1502	DIODE
Q881	2SJ306MRB	TRANSISTOR	D421	MA151K	DIODE
Q882	2SB1219AQ	TRANSISTOR	D440	MA4051NM	DIODE
Q890	2SK1848	TRANSISTOR	D550	FMQ-G5GSLF	DIODE
Q901	2SD1949Q	TRANSISTOR	D551	ERA81004	DIODE
Q902	UN5111AI	TRANSISTOR	D552	MA111	DIODE
Q903	UN5211AI	TRANSISTOR	D553	MA8150M	DIODE
Q1001	2SC4270	TRANSISTOR	D575	MA4047NM	DIODE
Q1002	2SC4270	TRANSISTOR	D577	MA111	DIODE
Q1030	2SC4270	TRANSISTOR	D602	ESAC39M-06D	DIODE
Q1031	2SC4270	TRANSISTOR	D604	ERA92-02	DIODE
Q1032	2SA1764	TRANSISTOR	D605	ERA92-02	DIODE
Q1065	2SC4412-45	TRANSISTOR	D651	MA167	DIODE
Q1101	2SC4270	TRANSISTOR	D652	TVSAG01	DIODE
Q1102	2SC4270	TRANSISTOR	D653	TVSAG01	DIODE
Q1130	2SC4270	TRANSISTOR	D654	MA111	DIODE
Q1131	2SC4270	TRANSISTOR	D673	MA165	DIODE
Q1132	2SA1764	TRANSISTOR	D674	MA142WK	DIODE
Q1165	2SC4412-45	TRANSISTOR	D680	MA4075NM	DIODE
Q1201	2SC4270	TRANSISTOR	D821	RBV606	DIODE
Q1202	2SC4270	TRANSISTOR	D822	RG2A2	DIODE
Q1230	2SC4270	TRANSISTOR	D824	MA4300NM	DIODE
Q1231	2SC4270	TRANSISTOR	D825	MA113	DIODE
Q1232	2SA1764	TRANSISTOR	D826	MA165	DIODE
Q1265	2SC4412-45	TRANSISTOR	D833	MA4082NM	DIODE
Q1301	2SA1576A	TRANSISTOR	D840	TAB101K201T	VARISTOR
Q1302	2SA1576A	TRANSISTOR	D841	EG01Z	DIODE
Q1303	UN5211AI	TRANSISTOR	D842	MA4150NL	DIODE
Q1304	UN5211AI	TRANSISTOR	D843	ERA34-10	DIODE
Q1345	UN5111AI	TRANSISTOR	D850	MA111	DIODE
Q1346	2SA1739R	TRANSISTOR	D851	ERC91-02	DIODE
Q1370	2SC3938R	TRANSISTOR	D855	MA4091NM	DIODE
Q1371	2SC3757Q	TRANSISTOR	D856	CB903-4	DIODE
Q1380	2SA1576A	TRANSISTOR	D857	MA111	DIODE
Q1381	UN5211AI	TRANSISTOR	D858	MA111	DIODE
Q1382	2SA1767Q	TRANSISTOR	D861	EG01A	DIODE
Q1383	2SD1819AQ	TRANSISTOR	D862	FML-S16S	DIODE
			D863	TVSRG2	DIODE
			D864	FML-G02S	DIODE
	DIODES		D865	ERC30-02	DIODE
D10	MA8150M	DIODE	D866	ERC30-02	DIODE
D11	MA153A	DIODE	D867	EG01A	DIODE
D12	MA4150NM	DIODE	D868	RN3Z014-305	DIODE
D13	MA174	DIODE	D869	MA111	DIODE
D14	MA111	DIODE	D871	MA4180NM	DIODE
D15	MA2330B	DIODE	D872	MA4022L	DIODE
D102	MA714	DIODE	D873	MA748	DIODE
D110	DTZTT115R6B	DIODE	D874	MA719	DIODE
D117	MA714	DIODE	D875	MA719	DIODE
D129	MA357	DIODE	D876	MA719	DIODE
D201	MA8056M	DIODE	D878	MA748	DIODE
D202	MA8056M	DIODE	D890	MA142WK	DIODE
D211	MA8056M	DIODE			

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
D891	MA111	DIODE	D1347	MA8330M	DIODE
D892	TVSD0003	DIODE	D1348	MA111	DIODE
D897	MA8150M	DIODE	D1349	MA8330M	DIODE
D901	MA111	DIODE	D1371	MA111	DIODE
D902	TVSD0003	DIODE	D1381	MA111	DIODE
D953	MA4056NM	DIODE	D1382	EU02Z	DIODE
D978	MA4056NM	DIODE	D1383	MA8100L	DIODE
D979	MA4056NM	DIODE			
D990	SML1816W	DIODE(LED)		COIL &	
D993	MA8056H	DIODE		TRANSFORMERS	
D994	MA8056H	DIODE	⚠ L101	ELJFA5R6JB	CHIP COIL
D995	MA8056H	DIODE	⚠ L501	ELC18B272G	CHOKE COIL
D996	MA8056H	DIODE	L503	TLH85815T	COIL
D1001	MA111	DIODE	L530	ELEY102KA	PEAKING COIL
D1002	MA111	DIODE	L532	TLH85815T	COIL
D1003	MA111	DIODE	L550	EXCELSA35T	LC COMBINATION
D1011	MA111	DIODE	L551	EXCELSA35T	LC COMBINATION
D1012	MA111	DIODE	⚠ L577	ELHKLB030B	COIL
D1013	MA111	DIODE	⚠ L578	ELHKLB031B	COIL
D1020	MA111	DIODE	L601	TLUADTB100K	PEAKING COIL
D1021	MA111	DIODE	L602	TLUACNB220K	PEAKING COIL
D1030	DCC010	DIODE	L603	TSK8029	FERRITE CORE
D1051	MA2Z001	DIODE	L605	TSK8029	FERRITE CORE
D1052	MA2Z001	DIODE	L680	TSK8029	FERRITE CORE
D1065	MA167A	DIODE	⚠ L801	ELF18D666V	LINE FILTER
D1101	MA111	DIODE	⚠ L802	ELF18D666V	LINE FILTER
D1102	MA111	DIODE	L820	EXCELDR35C	LC COMBINATION
D1103	MA111	DIODE	⚠ L850	TLP85708R	CHOKE COIL
D1111	MA111	DIODE	L861	TSK8029	FERRITE CORE
D1112	MA111	DIODE	L862	TSK8029	FERRITE CORE
D1113	MA111	DIODE	L863	TSK8029	FERRITE CORE
D1120	MA111	DIODE	L864	TSK8029	FERRITE CORE
D1121	MA111	DIODE	L865	TSK8029	FERRITE CORE
D1130	DCC010	DIODE	L866	TSK8029	FERRITE CORE
D1151	MA2Z001	DIODE	L868	TSK8029	FERRITE CORE
D1152	MA2Z001	DIODE	L881	TLUACNB102J	PEAKING COIL
D1165	MA167A	DIODE	L898	TLUACNB102J	PEAKING COIL
D1201	MA111	DIODE	L1320	EXCELDR35C	LC COMBINATION
D1202	MA111	DIODE	L1321	TSKA092	FERRITE CORE
D1203	MA111	DIODE	L1322	TSKA092	FERRITE CORE
D1211	MA111	DIODE	L1323	TSKA092	FERRITE CORE
D1212	MA111	DIODE	L1324	TSKA092	FERRITE CORE
D1213	MA111	DIODE	L1327	ELESN221KA	PEAKING COIL
D1220	MA111	DIODE	L1340	EXCELDR35C	LC COMBINATION
D1221	MA111	DIODE	L1341	EXCELDR35C	LC COMBINATION
D1230	DCC010	DIODE	L1351	EXCELDR35C	LC COMBINATION
D1251	MA2Z001	DIODE	L1352	EXCELDR35C	LC COMBINATION
D1252	MA2Z001	DIODE	L1354	EXCELDR35C	LC COMBINATION
D1265	MA167A	DIODE	L1401	ELEXH151KA	PEAKING COIL
D1301	MA142WA	DIODE	⚠ T351	TLHG010	D.A.F. TRANSFORMER
D1302	MA142WA	DIODE	⚠ T541	ETH19K179AM	H.DRIVE TRANSFORMER
D1324	MA4056NM	DIODE	⚠ T542	ETS29AC1Z9AC	TRANSFORMER
D1325	MA188	DIODE	⚠ T601	TLFA01365	FLYBACK TRANSFORMER
D1326	MA111	DIODE	⚠ T821	TLPA052	POWER TRANSFORMER
D1331	MA111	DIODE	⚠ T823	TLPA039	POWER TRANSFORMER(SUB)
D1340	MA4051NM	DIODE		CAPACITORS	
D1341	MA4051NM	DIODE			
D1342	MA4051NM	DIODE	C11	ECQV1H334JL	P 0.33UF J 50V
D1343	MA4051NM	DIODE	C13	ECJ2VF1H104Z	C 0.1UF Z 50V
D1344	MA4051NM	DIODE	C14	ECJ2VF1H104Z	C 0.1UF Z 50V
			C16	ECUX1H102JCX	C 1000PF J 50V
D1345	MA4051NM	DIODE	C17	ECQE2104KF	P 0.1UF K 200V
D1346	MA4051NM	DIODE			

Ref.No.	Part No.		Description		
C31	ECEA1HGE4R7	E	4.7UF		50V
C32	ECEA1HGE4R7	E	4.7UF		50V
C50	ECJ2VF1C105Z	C	1UF	Z	16V
C51	ECJ2VF1C105Z	C	1UF	Z	16V
C52	ECJ2VF1C105Z	C	1UF	Z	16V
C53	ECJ2VF1C105Z	C	1UF	Z	16V
C55	ECJ2VF1C105Z	C	1UF	Z	16V
C56	ECJ2VF1C105Z	C	1UF	Z	16V
C58	ECJ2VF1C105Z	C	1UF	Z	16V
C101	ECUX1H150JCN	C	15PF	J	50V
C102	ECUX1H150JCN	C	15PF	J	50V
C104	ECUX1H103KBG	C	0.01UF	K	50V
C108	ECUX1H101JCG	C	100PF	J	50V
C110	ECJ2VF1H104Z	C	0.1UF	Z	50V
C111	ECAOJHG471	E	470UF		6.3V
C113	ECUX1C104KBX	C	0.1UF	K	16V
C114	ECUX1H102KBN	C	1000PF	K	50V
C115	ECUX1H102KBN	C	1000PF	K	50V
C117	ECJ2VF1H104Z	C	0.1UF	Z	50V
C118	ECJ2VF1H104Z	C	0.1UF	Z	50V
C119	ECUX1H222JCX	C	2200PF	J	50V
C122	ECUX1C105KBW	C	1UF	K	16V
C123	ECJ2VF1H104Z	C	0.1UF	Z	50V
C124	ECUX1H103KBG	C	0.01UF	K	50V
C125	ECJ2VF1H104Z	C	0.1UF	Z	50V
C126	ECUX1H472KBG	C	4700PF	K	50V
C130	ECEV1CG100G	E	10UF		16V
C131	ECAOJHG471	E	470UF		6.3V
C132	ECJ2VF1H104Z	C	0.1UF	Z	50V
C133	ECEV1CG100G	E	10UF		16V
C134	ECJ2VF1H104Z	C	0.1UF	Z	50V
C137	ECJ2VF1H104Z	C	0.1UF	Z	50V
C138	ECEV1CG100G	E	10UF		16V
C139	ECJ2VF1H104Z	C	0.1UF	Z	50V
C140	ECJ2VF1H104Z	C	0.1UF	Z	50V
C141	ECJ2VF1H104Z	C	0.1UF	Z	50V
C143	ECUX1H101JCG	C	100PF	J	50V
C144	ECUX1H101JCG	C	100PF	J	50V
C145	ECJ2VF1H104Z	C	0.1UF	Z	50V
C151	ECJ2VF1H104Z	C	0.1UF	Z	50V
C152	ECJ2VF1H104Z	C	0.1UF	Z	50V
C153	ECUX1C224KBX	C	0.22UF	K	16V
C154	ECJ2VF1H104Z	C	0.1UF	Z	50V
C155	ECJ2VF1H104Z	C	0.1UF	Z	50V
C163	ECUX1H151JCG	C	150PF	J	50V
C164	ECUX1H151JCG	C	150PF	J	50V
C166	ECUX1H151JCG	C	150PF	J	50V
C167	ECUX1H151JCG	C	150PF	J	50V
C168	ECUX1H151JCG	C	150PF	J	50V
C169	ECUX1C224KBX	C	0.22UF	K	16V
C170	ECUX1H151JCG	C	150PF	J	50V
C171	ECEV1CG470G	E	47UF		16V
C173	ECJ2VF1H104Z	C	0.1UF	Z	50V
C174	ECA1CHG471	E	470UF		16V
C179	ECJ2VF1H104Z	C	0.1UF	Z	50V
C183	ECJ2VF1H104Z	C	0.1UF	Z	50V
C184	ECEV1CG100G	E	10UF		16V
C185	ECJ2VF1H104Z	C	0.1UF	Z	50V
C186	ECEV1CG100G	E	10UF		16V
C187	ECUX1H562JCW	C	5600PF	J	50V
C188	ECUX1H562JUW	C	5600PF	J	50V
C189	ECUX1H562JCW	C	5600PF	J	50V

Ref.No.	Part No.		Description		
C190	ECUX1H562JCW	C	5600PF	J	50V
C196	ECUX1H101JCG	C	100PF	J	50V
C255	ECJ2VF1H104Z	C	0.1UF	Z	50V
C256	ECJ2VF1H104Z	C	0.1UF	Z	50V
C257	ECUX1H271JCG	C	270PF	J	50V
C258	ECUX1H121JCG	C	120PF	J	50V
C259	ECUX1H150JCN	C	15PF	J	50V
C280	ECA1HENO10	E	1UF		50V
C281	ECUX1H103KBG	C	0.01UF	K	50V
C352	ECA2CHG100	E	10UF		160V
C353	ECQV1474JZ	P	0.47UF	J	100V
C369	ECA1HHG470	E	47UF		50V
C370	ECUX1H361JCG	C	360PF	J	50V
C371	ECKD2H471KB5	C	470PF	K	500V
C372	ECUX1HO80DCN	C	8PF	D	50V
C373	ECEA2EGE100	E	10UF		250V
C375	ECUX1H103KBG	C	0.01UF	K	50V
C376	ECA1CHG221	E	220UF		16V
C377	ECEA1EGE330	E	33UF		25V
C380	ECQE2104KF	P	0.1UF	K	200V
C440	ECA1EHG222	E	2200UF		25V
C441	TACCC1H100MT	E	10UF		50V
C444	TACCC1H101MT	E	100UF		50V
C445	TACCC1H101MT	E	100UF		50V
C446	ECUX1H102KBN	C	1000PF	K	50V
C447	ECA1EHG222	E	2200UF		25V
C448	ECQV1473JM	P	0.047UF	J	100V
C449	ECUX1H103KBG	C	0.01UF	K	50V
C450	ECQE1474KF	P	0.47UF	K	100V
C451	ECQE1563KF	P	0.056UF	K	100V
C501	TACBH2E224MT	C	0.22UF	M	250V
C503	ECJ2VF1H104Z	C	0.1UF	Z	50V
C504	ECA2AHG100	E	10UF		100V
C505	ECJ2VF1C105Z	C	1UF	Z	16V
C506	ECJ2VF1H104Z	C	0.1UF	Z	50V
C508	ECUX1E473KBX	C	0.047UF	K	25V
C530	ECA2EHG2R2	E	2.2UF		250V
C551	ECA1VHG101	E	100UF		35V
C552	TACBN2A332KT	C	3300PF	K	100V
C553	ECWH20222HV	PP	2200PF	H	1.5KV
C554	ECWH20222HV	PP	2200PF	H	1.5KV
C555	ECQE2335KF	P	3.3UF	K	200V
C561	ECWF2824HBB	PP	0.82UF	H	200V
C563	ECWF2364HBB	PP	0.36UF	H	200V
C565	ECWF2154HBB	PP	0.15UF	H	200V
C567	ECWF2185HBB	PP	1.8UF	H	200V
C568	ECWF2154HBB	PP	0.15UF	H	200V
C569	ECWF2154HBB	PP	0.15UF	H	200V
C574	ECKD2H102KB5	C	1000PF	K	500V
C575	ECKD2H102KB5	C	1000PF	K	500V
C578	ECA1VHG470	E	47UF		35V
C590	ECUX1H103KBG	C	0.01UF	K	50V
C601	ECQF6102JZ	PP	1000PF	J	600V
C602	ECQF6392JZ	PP	3900PF	J	600V
C651	ECEA1HGE4R7	E	4.7UF		50V
C652	ECA2EHG100	E	10UF		250V
C653	ECA2CHG100	E	10UF		160V
C654	ECA2CHG4R7	E	4.7UF		160V
C655	ECQV1H225JL	P	2.2UF	J	50V
C656	ECUX1H103KBG	C	0.01UF	K	50V
C657	ECUX1H103KBG	C	0.01UF	K	50V
C672	ECEA25V4R7T	E	4.7UF		25V

Ref.No.	Part No.		Description			Ref.No.	Part No.		Description		
C674	ECQV1H105JL	P	1UF	J	50V	C886	ECUX1H222KBN	C	2200PF	K	50V
C675	ECQB1H104JF	P	0.1UF	J	50V	C887	ECUX1H681KBN	C	680PF	K	50V
C682	ECJ2VF1H104Z	C	0.1UF	Z	50V	C888	TACBU2E333KT	C	0.033UF	K	250V
C683	ECJ2VF1H104Z	C	0.1UF	Z	50V	C889	ECQE2684KF	P	0.68UF	K	200V
C684	ECJ2VF1H104Z	C	0.1UF	Z	50V	C890	ECEA1HGE4R7	E	4.7UF		50V
C706	ECA1EEN100	E	10UF		25V	C891	TAC1102A331T	E	330UF		100V
⚠ C801	ECQU2A334MVZ	PP	0.33UF	M	250V	C893	ECUX1H561JCX	C	560PF	J	50V
⚠ C804	ECKDRS472MEY	C	4700PF	M		C894	ECJ2VF1H104Z	C	0.1UF	Z	50V
⚠ C805	ECKDRS472MEY	C	4700PF	M		C896	ECUX1E104KBX	C	0.1UF	K	25V
⚠ C806	ECQU2A104MNF	PP	0.1UF	M	250V	C897	ECUX1H472KBM	C	4700PF	K	50V
⚠ C807	ECQU2A224MNF	PP	0.22UF	M	250V	C898	ECA2EHG470	E	47UF		250V
C819	ECQE2154KF	P	0.15UF	K	200V	C899	ECUX1E104KBX	C	0.1UF	K	25V
C820	ECUX1C105KBW	C	1UF	K	16V	C902	ECUX1H104ZFW	C	0.1UF	Z	50V
C821	TAC1094Z391A	E	390UF		400V	C1001	ECUX1H103KBG	C	0.01UF	K	50V
C822	ECQE2154KF	P	0.15UF	K	200V	C1002	TACCLOJ227MT	E	220UF		6.3V
C823	ECKD3A271KBP	C	270PF	K	1KV	C1003	ECUX1H103KBG	C	0.01UF	K	50V
C825	ECEA1VGE330	E	33UF		35V	C1004	ECUX1H101JCG	C	100PF	J	50V
C828	ECUX1H222KBN	C	2200PF	K	50V	C1011	ECUX1H103KBG	C	0.01UF	K	50V
⚠ C831	ECKDRS332MEY	C	3300PF	M		C1012	TACCLOJ227MT	E	220UF		6.3V
⚠ C832	ECKDRS332MEY	C	3300PF	M		C1013	ECUX1H103KBG	C	0.01UF	K	50V
C833	ECJ2VF1H104Z	C	0.1UF	Z	50V	C1014	ECUX1H101JCG	C	100PF	J	50V
C834	ECUX1H222KBN	C	2200PF	K	50V	C1020	ECUX1H103KBG	C	0.01UF	K	50V
C835	ECQB1H222JF	P	2200PF	J	50V	C1021	ECA1HEN4R7	E	4.7UF		50V
C836	ECUX1H221KBN	C	220PF	K	50V	C1022	ECUX1H103KBG	C	0.01UF	K	50V
C837	ECEA1HGE2R2	E	2.2UF		50V	C1030	ECUX1H103KBG	C	0.01UF	K	50V
C839	ECUX1H222KBN	C	2200PF	K	50V	C1031	ECEA1EGE100	E	10UF		25V
C841	ECEA1EGE101	E	100UF		25V	C1032	ECUX1H103KBG	C	0.01UF	K	50V
C842	ECUX1H104ZFW	C	0.1UF	Z	50V	C1033	ECUX1H103KBG	C	0.01UF	K	50V
C843	ECEA1EGE330	E	33UF		25V	C1034	ECJ2VF1C105Z	C	1UF	Z	16V
C844	ECJ2VF1H104Z	C	0.1UF	Z	50V	C1041	ECUX1H680GCG	C	68PF	G	50V
C845	ECEA1EGE100	E	10UF		25V	C1042	ECUX1H150GCN	C	15PF	G	50V
C846	ECUX1H822KBG	C	8200PF	K	50V	C1043	ECUX1H040CCN	C	4PF	C	50V
C848	ECEA1EGE330	E	33UF		25V	C1050	TACBN2A102KT	C	1000PF	K	100V
C851	TACCC1C102MT	E	1000UF		16V	C1051	TACBN2A103KT	C	0.01UF	K	100V
C852	ECQE1474KF	P	0.47UF	K	100V	C1052	ECEA2AGE100	E	10UF		100V
C853	ECEA1CGE470	E	47UF		16V	C1053	TACBH2A474MT	C	0.47UF	M	100V
C858	ECJ2VF1H104Z	C	0.1UF	Z	50V	C1055	TACBJ2H222KT	C	2200PF	K	500V
C859	ECA2EHG101	E	100UF		250V	C1065	TACBG2E683KT	C	0.068UF	K	250V
C860	TACBK2A224MT	C	0.22UF	M	100V	C1066	ECEA2CGE010	E	1UF		160V
C861	ECOS2EA221CB	E	220UF		250V	C1067	ECUX1H470JCG	C	47PF	J	50V
C862	TACCC2A471MB	E	470UF		100V	C1068	ECUX1H100CCN	C	10PF	C	50V
C863	TAC11035102T	E	1000UF		35V	C1101	ECUX1H103KBG	C	0.01UF	K	50V
C864	TACCC1E222MT	E	2200UF		25V	C1102	TACCLOJ227MT	E	220UF		6.3V
C865	ECEA1CGE102	E	1000UF		16V	C1103	ECUX1H103KBG	C	0.01UF	K	50V
C866	ECEA1CGE102	E	1000UF		16V	C1104	ECUX1H101JCG	C	100PF	J	50V
C867	TACBK2A224MT	C	0.22UF	M	100V	C1111	ECUX1H103KBG	C	0.01UF	K	50V
C868	ECEA1EGE222	E	2200UF		25V	C1112	TACCLOJ227MT	E	220UF		6.3V
C869	ECA1CHG331	E	330UF		16V	C1113	ECUX1H103KBG	C	0.01UF	K	50V
C870	ECA1CHG331	E	330UF		16V	C1114	ECUX1H101JCG	C	100PF	J	50V
C872	ECUX1C224KBW	C	0.22UF	K	16V	C1120	ECUX1H103KBG	C	0.01UF	K	50V
C874	ECA1HHG470	E	47UF		50V	C1121	ECA1HEN4R7	E	4.7UF		50V
C875	TACCB2A331MA	E	330UF		100V	C1122	ECUX1H103KBG	C	0.01UF	K	50V
C876	ECUX1H103KBG	C	0.01UF	K	50V	C1130	ECUX1H103KBG	C	0.01UF	K	50V
C877	ECA1HHG220	E	22UF		50V	C1131	ECEA1EGE100	E	10UF		25V
C878	ECA1CHG101	E	100UF		16V	C1132	ECUX1H103KBG	C	0.01UF	K	50V
C879	ECA1EHG470	E	47UF		25V	C1133	ECUX1H103KBG	C	0.01UF	K	50V
C880	ECEA1EGE220	E	22UF		25V	C1134	ECJ2VF1C105Z	C	1UF	Z	16V
C881	ECA1HHG100	E	10UF		50V	C1141	ECUX1H680GCG	C	68PF	G	50V
C882	ECEA1HGE100	E	10UF		50V	C1142	ECUX1H150GCN	C	15PF	G	50V
C883	ECQB1H224JF	P	0.22UF	J	50V	C1143	ECUX1H030CCN	C	3PF	C	50V
C884	ECUX1H102KBN	C	1000PF	K	50V	C1150	TACBN2A102KT	C	1000PF	K	100V
C885	ECKD2H152KB5	C	1500PF	K	500V	C1151	TACBN2A103KT	C	0.01UF	K	100V

Ref.No.	Part No.		Description		
C1153	TACBH2A474MT	C	0.47UF	M	100V
C1155	TACBJ2H222KT	C	2200PF	K	500V
C1165	TACBG2E683KT	C	0.068UF	K	250V
C1166	ECEA2CGE010	E	1UF		160V
C1167	ECUX1H470JCG	C	47PF	J	50V
C1168	ECUX1H100CCN	C	10PF	C	50V
C1201	ECUX1H103KBG	C	0.01UF	K	50V
C1202	TACCLOJ227MT	E	220UF		6.3V
C1203	ECUX1H103KBG	C	0.01UF	K	50V
C1204	ECUX1H101JCG	C	100PF	J	50V
C1211	ECUX1H103KBG	C	0.01UF	K	50V
C1212	TACCLOJ227MT	E	220UF		6.3V
C1213	ECUX1H103KBG	C	0.01UF	K	50V
C1214	ECUX1H101JCG	C	100PF	J	50V
C1220	ECUX1H103KBG	C	0.01UF	K	50V
C1221	ECA1HEN4R7	E	4.7UF		50V
C1222	ECUX1H103KBG	C	0.01UF	K	50V
C1230	ECUX1H103KBG	C	0.01UF	K	50V
C1231	ECEA1EGE100	E	10UF		25V
C1232	ECUX1H103KBG	C	0.01UF	K	50V
C1233	ECUX1H103KBG	C	0.01UF	K	50V
C1234	ECJ2VF1C105Z	C	1UF	Z	16V
C1241	ECUX1H680GCG	C	68PF	G	50V
C1242	ECUX1H150GCN	C	15PF	G	50V
C1250	TACBN2A102KT	C	1000PF	K	100V
C1251	TACBN2A103KT	C	0.01UF	K	100V
C1252	ECEA2AGE100	E	10UF		100V
C1253	TACBH2A474MT	C	0.47UF	M	100V
C1255	TACBJ2H222KT	C	2200PF	K	500V
C1265	TACBG2E683KT	C	0.068UF	K	250V
C1266	ECEA2CGE010	E	1UF		160V
C1267	ECUX1H470JCG	C	47PF	J	50V
C1268	ECUX1H100CCN	C	10PF	C	50V
C1301	TACCL1C476MT	E	470UF		16V
C1302	TACCL1H105MT	E	1UF		50V
C1304	ECUX1H103KBG	C	0.01UF	K	50V
C1305	ECUX1H103KBG	C	0.01UF	K	50V
C1306	ECUX1H103KBG	C	0.01UF	K	50V
C1310	TACCL1C476MT	E	470UF		16V
C1312	TACCL1H105MT	E	1UF		50V
C1313	ECEA1HGE100	E	10UF		50V
C1314	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1320	ECEA1CGE470	E	47UF		16V
C1321	ECUX1H103KBG	C	0.01UF	K	50V
C1322	ECA1HHG100	E	10UF		50V
C1323	ECUX1H103KBG	C	0.01UF	K	50V
C1326	ECEA1CGE471	E	470UF		16V
C1327	ECUX1H103KBG	C	0.01UF	K	50V
C1328	ECEA1CGE471	E	470UF		16V
C1329	ECEA1AGE101	E	100UF		10V
C1331	ECEA1AGE101	E	100UF		10V
C1332	ECJ2VF1E224Z	C	0.22UF	Z	25V
C1333	ECUX1H103KBG	C	0.01UF	K	50V
C1334	ECEA1CGE470	E	47UF		16V
C1335	ECEA1CGE470	E	47UF		16V
C1336	ECEA1CGE470	E	47UF		16V
C1340	TCUX1C225ZFN	C	2.2UF	Z	16V
C1342	ECEA2AGE220	E	22UF		100V
C1344	ECUX1H102KBN	C	1000PF	K	50V
C1345	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1346	ECEA1EGE100	E	10UF		25V
C1348	ECEA2CGE100	E	10UF		160V

Ref.No.	Part No.		Description		
C1349	TCUX1C225ZFN	C	2.2UF	Z	16V
C1351	TACBJ2H222KT	C	2200PF	K	500V
C1355	TACBJ2H102KT	C	1000PF	K	500V
C1356	TACBJ2H101KT	C	100PF	K	500V
C1357	ECKD3D272KBP	C	2700PF	K	2KV
C1358	TACBJ2J222KT	C	2200PF	K	630V
C1359	TACBJ2J222KT	C	2200PF	K	630V
C1360	TACBJ2J222KT	C	2200PF	K	630V
C1365	TCUX2H110JCM	C	11PF	J	500V
C1370	TACBJ2H102KT	C	1000PF	K	500V
C1372	ECUX1H221KBN	C	220PF	K	50V
C1381	ECJ2VF1H104Z	C	0.1UF	Z	50V
C1391	TACBG2E683KT	C	0.068UF	K	250V
C1402	ECUX1H223KBX	C	0.022UF	K	50V
C1403	ECJ2VF1E224Z	C	0.22UF	Z	25V
C1404	ECUX1H221KBN	C	220PF	K	50V
C1405	ECUX1H104KBW	C	0.1UF	K	50V
C1406	ECEA1AGE101	E	100UF		10V
C1408	ECUX1H220JCN	C	22PF	J	50V
C1409	ECJ2VF1C105Z	C	1UF	Z	16V
C1410	ECEA1EGE100	E	10UF		25V
C1412	ECEA1HGE3R3	E	3.3UF		50V
C1414	ECEA1HGE3R3	E	3.3UF		50V

RESISTORS

Ref.No.	Part No.		Description		
C1353	ERJ8GCYOROO	M	0 OHM		1/8W
J601	ERJ6GEYOROO	M	0 OHM		1/10W
J602	ERJ6GEYOROO	M	0 OHM		1/10W
J603	ERJ6GEYOROO	M	0 OHM		1/10W
J604	ERJ6GEYOROO	M	0 OHM		1/10W
J605	ERJ6GEYOROO	M	0 OHM		1/10W
J606	ERJ6GEYOROO	M	0 OHM		1/10W
J607	ERJ6GEYOROO	M	0 OHM		1/10W
J608	ERJ6GEYOROO	M	0 OHM		1/10W
J609	ERJ6GEYOROO	M	0 OHM		1/10W
J610	ERJ6GEYOROO	M	0 OHM		1/10W
J701	ERJ8GCYOROO	M	0 OHM		1/8W
J702	ERJ8GCYOROO	M	0 OHM		1/8W
J703	ERJ8GCYOROO	M	0 OHM		1/8W
J704	ERJ8GCYOROO	M	0 OHM		1/8W
J705	ERJ8GCYOROO	M	0 OHM		1/8W
J706	ERJ8GCYOROO	M	0 OHM		1/8W
J707	ERJ8GCYOROO	M	0 OHM		1/8W
J708	ERJ8GCYOROO	M	0 OHM		1/8W
J709	ERJ8GCYOROO	M	0 OHM		1/8W
J710	ERJ8GCYOROO	M	0 OHM		1/8W
J712	ERJ8GCYOROO	M	0 OHM		1/8W
J713	ERJ8GCYOROO	M	0 OHM		1/8W
J714	ERJ8GCYOROO	M	0 OHM		1/8W
J715	ERJ8GCYOROO	M	0 OHM		1/8W
J716	ERJ8GCYOROO	M	0 OHM		1/8W
J717	ERJ8GCYOROO	M	0 OHM		1/8W
J718	ERJ8GCYOROO	M	0 OHM		1/8W
J719	ERJ8GCYOROO	M	0 OHM		1/8W
J721	ERJ8GCYOROO	M	0 OHM		1/8W
J722	ERJ8GCYOROO	M	0 OHM		1/8W
J724	ERJ8GCYOROO	M	0 OHM		1/8W
J725	ERJ8GCYOROO	M	0 OHM		1/8W
J726	ERJ8GCYOROO	M	0 OHM		1/8W
J727	ERJ8GCYOROO	M	0 OHM		1/8W
J729	ERJ8GCYOROO	M	0 OHM		1/8W
J730	ERJ8GCYOROO	M	0 OHM		1/8W

Ref.No.	Part No.		Description		
J731	ERJ8GCYOR00	M	0 OHM		1/8W
J732	ERJ8GCYOR00	M	0 OHM		1/8W
J733	ERJ8GCYOR00	M	0 OHM		1/8W
J734	ERJ8GCYOR00	M	0 OHM		1/8W
J735	ERJ8GCYOR00	M	0 OHM		1/8W
J736	ERJ8GCYOR00	M	0 OHM		1/8W
J737	ERJ8GCYOR00	M	0 OHM		1/8W
J738	ERJ8GCYOR00	M	0 OHM		1/8W
J739	ERJ8GCYOR00	M	0 OHM		1/8W
J1301	ERD25TC0	C	0 OHM		1/4W
J1302	ERD25TC0	C	0 OHM		1/4W
J1321	ERD25TC0	C	0 OHM		1/4W
J1325	ERJ6GEYOR00	M	0 OHM		1/10W
L1056	ERJ8GCYOR00	M	0 OHM		1/8W
L1156	ERJ8GCYOR00	M	0 OHM		1/8W
L1256	ERJ8GCYOR00	M	0 OHM		1/8W
R10	ERDS2TJ101	C	100 OHM	J	1/4W
R11	ERJ6ENF1002	M	10K OHM	F	1/10W
R12	ERJ6ENF4703	M	470K OHM	F	1/10W
R13	ERJ6ENF1052	M	10.5K OHM	F	1/10W
R14	ERJ6ENF3301	M	3.3K OHM	F	1/10W
R15	ERG2SJ183	M	18K OHM	J	2W
R16	ERJ6ENF2320	M	232 OHM	F	1/10W
R18	ERG1SJ273	M	27K OHM	J	1W
R19	ERJ6ENF4702	M	47K OHM	F	1/10W
R20	ERJ6ENF4702	M	47K OHM	F	1/10W
R22	ERJ6GEYOR00	M	0 OHM		1/10W
R23	ERJ6GEYJ105	M	1M OHM	J	1/10W
R24	ERJ6ENF4703	M	470K OHM	F	1/10W
R25	ERJ6ENF1000	M	100 OHM	F	1/10W
R26	ERJ6GEYJ333	M	33K OHM	J	1/10W
R31	ERJ6GEYJ102	M	1K OHM	J	1/10W
R32	ERJ8GCYK2R7	M	2.7 OHM	K	1/8W
R33	ERG1SJ100	M	10 OHM	J	1W
R50	ERJ6GEYJ102	M	1K OHM	J	1/10W
R51	ERJ6GEYJ102	M	1K OHM	J	1/10W
R52	ERJ6GEYJ102	M	1K OHM	J	1/10W
R53	ERJ6GEYJ102	M	1K OHM	J	1/10W
R55	ERJ6GEYJ102	M	1K OHM	J	1/10W
R56	ERJ6GEYJ102	M	1K OHM	J	1/10W
R58	ERJ6GEYJ102	M	1K OHM	J	1/10W
R101	ERJ6GEYJ103	M	10K OHM	J	1/10W
R102	ERJ6GEYJ103	M	10K OHM	J	1/10W
R103	ERJ6GEYJ103	M	10K OHM	J	1/10W
R104	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R105	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R106	ERJ6GEYJ103	M	10K OHM	J	1/10W
R107	ERJ6GEYJ103	M	10K OHM	J	1/10W
R109	ERJ6GEYJ103	M	10K OHM	J	1/10W
R110	ERJ6GEYJ103	M	10K OHM	J	1/10W
R111	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
R112	ERJ6GEYJ122	M	1.2K OHM	J	1/10W
R115	ERJ6GEYOR00	M	0 OHM		1/10W
R120	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R121	ERJ6GEYJ822	M	8.2K OHM	J	1/10W
R123	ERJ6GEYJ122	M	1.2K OHM	J	1/10W
R124	ERJ6GEYJ392	M	3.9K OHM	J	1/10W
R125	ERJ6GEYJ335	M	3.3M OHM	J	1/10W
R127	ERJ6GEYOR00	M	0 OHM		1/10W
R131	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R132	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R133	ERJ6GEYOR00	M	0 OHM		1/10W

Ref.No.	Part No.		Description		
R134	ERJ6GEYOR00	M	0 OHM		1/10W
R135	ERJ6GEYJ471	M	470 OHM	J	1/10W
R136	ERJ6GEYJ470	M	47 OHM	J	1/10W
R137	ERJ6GEYJ470	M	47 OHM	J	1/10W
R140	ERJ6GEYJ103	M	10K OHM	J	1/10W
R141	ERJ6GEYJ103	M	10K OHM	J	1/10W
R142	ERJ6GEYJ103	M	10K OHM	J	1/10W
R145	ERJ6GEYJ103	M	10K OHM	J	1/10W
R146	ERJ6GEYJ103	M	10K OHM	J	1/10W
R149	ERJ6GEYJ183	M	18K OHM	J	1/10W
R150	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R151	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R152	ERJ12YJ471	M	470 OHM	J	1/2W
R153	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R154	ERJ6GEYJ102	M	1K OHM	J	1/10W
R155	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R156	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R162	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
R163	ERJ6GEYJ683	M	68K OHM	J	1/10W
R164	ERJ6GEYJ102	M	1K OHM	J	1/10W
R165	ERJ6GEYOR00	M	0 OHM		1/10W
R170	ERJ6ENF2202	M	22K OHM	F	1/10W
R171	ERJ6ENF5622	M	56.2K OHM	F	1/10W
R172	ERJ6ENF5622	M	56.2K OHM	F	1/10W
R173	ERJ6ENF6802	M	68K OHM	F	1/10W
R174	ERJ6GEYJ270	M	27 OHM	J	1/10W
R175	ERJ6GEYJ270	M	27 OHM	J	1/10W
R177	ERJ6GEYOR00	M	0 OHM		1/10W
R191	ERJ6GEYJ271	M	270 OHM	J	1/10W
R192	ERJ6GEYJ271	M	270 OHM	J	1/10W
R193	ERJ6GEYJ471	M	470 OHM	J	1/10W
R194	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R195	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R196	ERJ6GEYJ471	M	470 OHM	J	1/10W
R197	ERJ6GEYJ103	M	10K OHM	J	1/10W
R200	ERJ6GEYJ471	M	470 OHM	J	1/10W
R201	ERJ6GEYJ101	M	100 OHM	J	1/10W
R204	ERJ6GEYJ471	M	470 OHM	J	1/10W
R205	ERJ6GEYJ101	M	100 OHM	J	1/10W
R208	ERJ6GEYJ471	M	470 OHM	J	1/10W
R209	ERJ6GEYJ471	M	470 OHM	J	1/10W
R210	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R213	ERJ6GEYOR00	M	0 OHM		1/10W
R214	ERJ6GEYOR00	M	0 OHM		1/10W
R220	ERJ6GEYOR00	M	0 OHM		1/10W
R221	ERJ6GEYOR00	M	0 OHM		1/10W
R222	ERJ6GEYJ103	M	10K OHM	J	1/10W
R223	ERJ6GEYJ123	M	12K OHM	J	1/10W
R224	ERJ6GEYJ563	M	56K OHM	J	1/10W
R240	ERJ6GEYJ271	M	270 OHM	J	1/10W
R241	ERJ6GEYJ271	M	270 OHM	J	1/10W
R242	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R243	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R250	ERJ6GEYOR00	M	0 OHM		1/10W
R255	ERJ6GEYJ272	M	2.7K OHM	J	1/10W
R256	ERJ6GEYJ121	M	120 OHM	J	1/10W
R257	ERJ6GEYJ222	M	2.2K OHM	J	1/10W
R258	ERJ6GEYJ561	M	560 OHM	J	1/10W
R261	ERJ6GEYJ683	M	68K OHM	J	1/10W
R271	ERJ6GEYJ223	M	22K OHM	J	1/10W
R272	ERJ6GEYJ223	M	22K OHM	J	1/10W
R273	ERJ6GEYJ102	M	1K OHM	J	1/10W

Ref.No.	Part No.		Description			
R274	ERJ6GEYJ102	M	1K OHM	J	1/10W
R280	ERJ6GEYJ152	M	1.5K OHM	J	1/10W
R281	ERJ6GEYJ104	M	100K OHM	J	1/10W
R282	ERJ6GEYJ102	M	1K OHM	J	1/10W
R283	ERJ6GEYJ331	M	330 OHM	J	1/10W
R284	ERJ6GEYJ331	M	330 OHM	J	1/10W
R285	ERJ6GEYJ102	M	1K OHM	J	1/10W
R286	ERJ6GEYJ561	M	560 OHM	J	1/10W
R291	ERJ6GEYJ223	M	22K OHM	J	1/10W
R292	ERJ6GEYJ223	M	22K OHM	J	1/10W
R293	ERJ6GEYJ102	M	1K OHM	J	1/10W
R294	ERJ6GEYJ102	M	1K OHM	J	1/10W
R350	ERQ14AJ330	F	33 OHM	J	1/4W
R353	ERDS1FJ100	C	10 OHM	J	1/2W
R354	ERDS1FJ100	C	10 OHM	J	1/2W
R355	ERG2SJ270	M	27 OHM	J	2W
R371	ERDS1FJ364	C	360K OHM	J	1/2W
R372	ERJ8GCYJ475	M	4.7M OHM	J	1/8W
R373	ERJ8GCYJ683	M	68K OHM	J	1/8W
R374	ERJ8ENF1101	M	1.1K OHM	F	1/8W
R375	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R380	ERD25FJ102K	C	1K OHM	J	1/4W
R381	ERJ6ENF2051	M	2.05K OHM	F	1/10W
R382	ERJ6ENF6982	M	69.8K OHM	F	1/10W
R384	ERJ6ENF2871	M	2.87K OHM	F	1/10W
R385	ERJ8GCYJ121	M	120 OHM	J	1/8W
R386	ERG3FJ103	M	10K OHM	J	3W
R387	ERJ8GCYJ302	M	3K OHM	J	1/8W
R389	ERJ8GCYJ102	M	1K OHM	J	1/8W
R390	ERJ6ENF1071	M	1.07K OHM	F	1/10W
R391	ERJ6GEYJ103	M	10K OHM	J	1/10W
R392	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R393	ERG1SJ273	M	27K OHM	J	1W
R407	ERJ6ENF2432	M	24.3K OHM	F	1/10W
R425	ERDS2TJ222	C	2.2K OHM	J	1/4W
R440	ERJ6GEYJ103	M	10K OHM	J	1/10W
R441	ERJ6GEYJ103	M	10K OHM	J	1/10W
R480	ERJ6ENF1742	M	17.4K OHM	F	1/10W
R481	ERJ6ENF2941	M	2.94K OHM	F	1/10W
R482	ERDS1FJ1R2	C	1.2 OHM	J	1/2W
R483	ERDS1FJ1R2	C	1.2 OHM	J	1/2W
R484	EROS2CKF1202	M	12K OHM	F	1/4W
R485	ERJ6GEYJ122	M	1.2K OHM	J	1/10W
R486	ERJ6ENF1872	M	18.7K OHM	F	1/10W
R487	ERDS2TJ1RO	C	1 OHM	J	1/4W
R488	ERX1SG1R2	M	1.2 OHM	G	1W
R489	ERX1SG1R8	M	1.8 OHM	G	1W
R501	ERX2SJ3R3	M	3.3 OHM	J	2W
R502	ERG1SJ390	M	39 OHM	J	1W
R503	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R504	ERJ6GEYJ153	M	15K OHM	J	1/10W
R505	ERX2SJ3R3	M	3.3 OHM	J	2W
R506	ERD25FJ153K	C	15K OHM	J	1/4W
R507	ERJ6GEYJ392	M	3.9K OHM	J	1/10W
R508	ERJ6GEYJ102	M	1K OHM	J	1/10W
R509	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R527	ERJ6GEYOROO	M	0 OHM		1/10W
R530	ERQ12AJ270	F	27 OHM	J	1/2W
R531	ERJ12YJ5R6	M	5.6 OHM	J	1/2W
R532	ERJ12YJ5R6	M	5.6 OHM	J	1/2W
R542	ERJ6ENF7871	M	7.87K OHM	F	1/10W
R543	ERJ6ENF6491	M	6.49K OHM	F	1/10W

Ref.No.	Part No.		Description			
R544	ERJ6ENF1822	M	18.2K OHM	F	1/10W
R545	ERG3FJ470	M	47 OHM	J	3W
R546	ERG3FJ470	M	47 OHM	J	3W
R547	ERJ6GEYJ470	M	47 OHM	J	1/10W
R548	ERJ6GEYJ332	M	3.3K OHM	J	1/10W
R549	ERG2SJ561	M	560 OHM	J	2W
R550	ERQ12AJR47	F	0.47 OHM	J	1/2W
R551	ERX3FJX1R8D	M	1.8 OHM	J	3W
R552	ERX3FJX1R8D	M	1.8 OHM	J	3W
R554	ERX3FJX6R8D	M	6.8 OHM	J	3W
R555	ERD25TCO	C	0 OHM		1/4W
R560	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R561	ERJ6GEYJ100	M	10 OHM	J	1/10W
R563	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R564	ERJ6GEYJ100	M	10 OHM	J	1/10W
R566	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R567	ERJ6GEYJ100	M	10 OHM	J	1/10W
R568	ERJ6GEYJ472	M	4.7K OHM	J	1/10W
R569	ERJ6GEYJ100	M	10 OHM	J	1/10W
R574	ERDS1FJ181	C	180 OHM	J	1/2W
R575	ERQ12AJ271	F	270 OHM	J	1/2W
R595	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R596	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R597	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R602	ERX1SJR33	M	0.33 OHM	J	1W
R603	ERX1SJR27	M	0.27 OHM	J	1W
R604	TARRS5B101J2	M	100 OHM	J	5W
R605	TARRS5B101J2	M	100 OHM	J	5W
R648	ERJ6ENF8060	M	806 OHM	F	1/10W
R649	ERJ6GEYOROO	M	0 OHM		1/10W
R650	ERJ8GCYOROO	M	0 OHM		1/8W
R651	ERQ14AJ100	F	10 OHM	J	1/4W
R652	ERQ14AJR47HK	F	0.47 OHM	J	1/4W
R653	ERQ14AJR47HK	F	0.47 OHM	J	1/4W
R655	ERJ8ENF5231	M	5.23K OHM	F	1/8W
R656	ERJ6GEYJ223	M	22K OHM	J	1/10W
R657	ERJ6ENF3162	M	31.6K OHM	F	1/10W
R658	ERJ6ENF1002	M	10K OHM	F	1/10W
R660	ERJ6GEYJ270	M	27 OHM	J	1/10W
R671	EROS2CKF1333	M	133K OHM	F	1/4W
R672	EROS2CKF1433	M	143K OHM	F	1/4W
R673	ERDS2TJ474	C	470K OHM	J	1/4W
R680	ERJ6GEYJ153	M	15K OHM	J	1/10W
R682	ERJ6GEYJ221	M	220 OHM	J	1/10W
R683	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R684	ERJ6ENF1002	M	10K OHM	F	1/10W
R685	ERJ6ENF2372	M	23.7K OHM	F	1/10W
R687	ERJ6GEYJ333	M	33K OHM	J	1/10W
R720	ERJ6GEYJ682	M	6.8K OHM	J	1/10W
R721	ERJ6GEYJ164	M	160K OHM	J	1/10W
R722	ERJ6GEYJ182	M	1.8K OHM	J	1/10W
R801	ERC12AGK105	S	1M OHM	K	1/2W
R820	ERJ6GEYJ563	M	56K OHM	J	1/10W
R821	ERF2EKR22	W	0.22 OHM	K	2W
R822	TARRS3B104J2	M	100K OHM	J	3W
R823	ERJ6GEYJ103	M	10K OHM	J	1/10W
R824	ERJ6ENF1211	M	1.21K OHM	F	1/10W
R825	ERJ6GEYJ682	M	6.8K OHM	J	1/10W
R826	ERJ6ENF7152	M	71.5K OHM	F	1/10W
R827	ERDS1FJ394	C	390K OHM	J	1/2W
R828	ERDS1FJ394	C	390K OHM	J	1/2W
R829	ERJ8GCYJ223	M	22K OHM	J	1/8W

Ref.No.	Part No.		Description				Ref.No.	Part No.		Description			
R830	ERJ6GEYJ273	M	27K OHM	J	1/10W		R898	ERJ6ENF2001	M	2K OHM	F	1/10W
R831	ERD25FJ560K	C	56 OHM	J	1/4W		R899	ERJ6GEYJ103	M	10K OHM	J	1/10W
R832	ERJ6GEYJ220	M	22 OHM	J	1/10W		R902	ERJ6GEYJ103	M	10K OHM	J	1/10W
R833	ERD25FJ223K	C	22K OHM	J	1/4W		R903	ERJ6GEYJ102	M	1K OHM	J	1/10W
R834	ERJ8GCYJ222	M	2.2K OHM	J	1/8W		R905	ERJ6GEYJ331	M	330 OHM	J	1/10W
R835	ERJ8GCYJ222	M	2.2K OHM	J	1/8W		R906	ERJ6GEYJ331	M	330 OHM	J	1/10W
R836	ERG3FJ820	M	82 OHM	J	3W		R909	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R837	ERJ6ENF1400	M	140 OHM	F	1/10W		R913	ERJ6GEYJ562	M	5.6K OHM	J	1/10W
R838	ERJ6GEYJ222	M	2.2K OHM	J	1/10W		R961	ERJ6GEYOR00	M	0 OHM		1/10W
R839	ERJ6GEYJ332	M	3.3K OHM	J	1/10W		R975	ERJ6GEYJ101	M	100 OHM	J	1/10W
R840	ERJ6GEYJ103	M	10K OHM	J	1/10W		R978	ERJ6GEYJ101	M	100 OHM	J	1/10W
R841	ERDS1FJ104	C	100K OHM	J	1/2W		R979	ERJ6GEYJ101	M	100 OHM	J	1/10W
R842	ERJ6GEYJ180	M	18 OHM	J	1/10W		R988	ERJ6GEYJ102	M	1K OHM	J	1/10W
R843	ERJ6GEYJ103	M	10K OHM	J	1/10W		R990	ERDS2TJ103	C	10K OHM	J	1/4W
R847	ERJ6GEYK2R2	M	2.2 OHM	K	1/10W		R991	ERDS2TJ103	C	10K OHM	J	1/4W
R849	ERDS2TJ122	C	1.2K OHM	J	1/4W		R992	ERJ6GEYOR00	M	0 OHM		1/10W
R850	ERJ6GEYJ102	M	1K OHM	J	1/10W		R993	ERJ6GEYOR00	M	0 OHM		1/10W
R853	ERJ6GEYJ271	M	270 OHM	J	1/10W		R1001	TAJADQ76R8FV	M	76.8 OHM	F	1/3W
R854	ERJ6GEYJ820	M	82 OHM	J	1/10W		R1002	ERJ6GEYJ223	M	22K OHM	J	1/10W
R855	ERJ6GEYJ102	M	1K OHM	J	1/10W		R1003	ERJ6GEYJ123	M	12K OHM	J	1/10W
R856	ERA6YEB104	M	100K OHM	B	1/10W		R1004	ERJ6ENF3900	M	390 OHM	F	1/10W
R857	ERA6YEB302	M	3K OHM	B	1/10W		R1007	ERJ6ENF11R5	M	11.5 OHM	F	1/10W
R858	ERJ6GEYJ102	M	1K OHM	J	1/10W		R1011	TAJADQ76R8FV	M	76.8 OHM	F	1/3W
R859	ERD25FJ391K	C	390 OHM	J	1/4W		R1012	ERJ6GEYJ223	M	22K OHM	J	1/10W
R860	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1013	ERJ6GEYJ123	M	12K OHM	J	1/10W
R861	ERQ12AJR33HK	F	0.33 OHM	J	1/2W		R1014	ERJ6ENF3900	M	390 OHM	F	1/10W
R862	TAR14CJOR15V	M	0.15 OHM	J	1/2W		R1020	TAJADQ75ROFV	M	75 OHM	F	1/3W
R863	ERQ12AJR47	F	0.47 OHM	J	1/2W		R1021	ERJ6GEYJ330	M	33 OHM	J	1/10W
R864	ERQ12AJR12HK	F	0.12 OHM	J	1/2W		R1022	ERJ8GCYJ471	M	470 OHM	J	1/8W
R865	ERQ12AJR12HK	F	0.12 OHM	J	1/2W		R1023	ERJ6GEYJ330	M	33 OHM	J	1/10W
R866	ERQ12AJR12HK	F	0.12 OHM	J	1/2W		R1030	ERJ6GEYJ330	M	33 OHM	J	1/10W
R867	ERJ6GEYJ104	M	100K OHM	J	1/10W		R1031	ERJ6GEYJ331	M	330 OHM	J	1/10W
R868	ERQ12AJR47	F	0.47 OHM	J	1/2W		R1032	ERJ6GEYJ100	M	10 OHM	J	1/10W
R869	ERD25FJ471K	C	470 OHM	J	1/4W		R1033	ERJ6GEYJ330	M	33 OHM	J	1/10W
R870	ERDS1FJ224	C	220K OHM	J	1/2W		R1040	ERJ6ENF2260	M	226 OHM	F	1/10W
R871	ERJ6GEYJ183	M	18K OHM	J	1/10W		R1041	ERJ6ENF29R4	M	29.4 OHM	F	1/10W
R872	ERJ6ENF1822	M	18.2K OHM	F	1/10W		R1042	ERJ6GEYJ682	M	6.8K OHM	J	1/10W
R873	ERJ6ENF4222	M	42.2K OHM	F	1/10W		R1044	ERJ6ENF1581	M	1.58K OHM	F	1/10W
R874	ERJ6GEYJ101	M	100 OHM	J	1/10W		R1050	ERJ6ENF1053	M	105K OHM	F	1/10W
R875	ERJ6GEYJ102	M	1K OHM	J	1/10W		R1052	ERJ6GEYOR00	M	0 OHM		1/10W
R876	ERJ6GEYJ562	M	5.6K OHM	J	1/10W		R1055	ERDS2TJ471	C	470 OHM	J	1/4W
R877	ERJ6GEYJ753	M	75K OHM	J	1/10W		R1057	ERDS1FJ330	C	33 OHM	J	1/2W
R878	ERG1SJ683	M	68K OHM	J	1W		R1061	ERJ6ENF2372	M	23.7K OHM	F	1/10W
R879	ERJ8GCYJ332	M	3.3K OHM	J	1/8W		R1062	ERJ6ENF4532	M	45.3K OHM	F	1/10W
R880	EROS2CKF1211	M	1.21K OHM	F	1/4W		R1065	ERJ6GEYJ221	M	220 OHM	J	1/10W
R881	ERJ6ENF1821	M	1.82K OHM	F	1/10W		R1066	ERJ6GEYJ103	M	10K OHM	J	1/10W
R882	ERJ6ENF4531	M	4.53K OHM	F	1/10W		R1067	ERDS2TJ224	C	220K OHM	J	1/4W
R883	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1101	TAJADQ76R8FV	M	76.8 OHM	F	1/3W
R884	ERJ6ENF6041	M	6.04K OHM	F	1/10W		R1102	ERJ6GEYJ223	M	22K OHM	J	1/10W
R885	ERJ6ENF3741	M	3.74K OHM	F	1/10W		R1103	ERJ6GEYJ123	M	12K OHM	J	1/10W
R886	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1104	ERJ6ENF1400	M	140 OHM	F	1/10W
R887	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1107	ERJ6ENF11R5	M	11.5 OHM	F	1/10W
R888	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1111	TAJADQ76R8FV	M	76.8 OHM	F	1/3W
R889	ERJ6GEYJ391	M	390 OHM	J	1/10W		R1112	ERJ6GEYJ223	M	22K OHM	J	1/10W
R890	ERX2SJ1RO	M	1 OHM	J	2W		R1113	ERJ6GEYJ123	M	12K OHM	J	1/10W
R891	ERJ6GEYJ103	M	10K OHM	J	1/10W		R1114	ERJ6ENF1400	M	140 OHM	F	1/10W
R892	ERJ6ENF4420	M	442 OHM	F	1/10W		R1120	TAJADQ75ROFV	M	75 OHM	F	1/3W
R893	ERDS1FJ224	C	220K OHM	J	1/2W		R1121	ERJ6GEYJ330	M	33 OHM	J	1/10W
R894	ERJ6GEYJ102	M	1K OHM	J	1/10W		R1122	ERJ8GCYJ471	M	470 OHM	J	1/8W
R895	ERJ6GEYJ101	M	100 OHM	J	1/10W		R1123	ERJ6GEYJ330	M	33 OHM	J	1/10W
R896	ERJ6GEYJ332	M	3.3K OHM	J	1/10W		R1130	ERJ6GEYJ330	M	33 OHM	J	1/10W
R897	ERJ6GEYJ225	M	2.2M OHM	J	1/10W		R1131	ERJ6GEYJ331	M	330 OHM	J	1/10W

Ref.No.	Part No.		Description			
R1132	ERJ6GEYJ100	M	10	OHM	J	1/10W
R1133	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1140	ERJ6ENF2260	M	226	OHM	F	1/10W
R1141	ERJ6ENF26R7	M	26.7	OHM	F	1/10W
R1142	ERJ6GEYJ682	M	6.8K	OHM	J	1/10W
R1144	ERJ6ENF1581	M	1.58K	OHM	F	1/10W
R1150	ERJ6ENF1053	M	105K	OHM	F	1/10W
R1152	ERJ6GEYOR00	M	0	OHM		1/10W
R1155	ERDS2TJ471	C	470	OHM	J	1/4W
R1157	ERDS1FJ330	C	33	OHM	J	1/2W
R1161	ERJ6ENF2372	M	23.7K	OHM	F	1/10W
R1162	ERJ6ENF4532	M	45.3K	OHM	F	1/10W
R1165	ERJ6GEYJ221	M	220	OHM	J	1/10W
R1166	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1167	ERDS2TJ224	C	220K	OHM	J	1/4W
R1201	TAJADQ76R8FV	M	76.8	OHM	F	1/3W
R1202	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R1203	ERJ6GEYJ123	M	12K	OHM	J	1/10W
R1204	ERJ6ENF3900	M	390	OHM	F	1/10W
R1207	ERJ6ENF11R5	M	11.5	OHM	F	1/10W
R1211	TAJADQ76R8FV	M	76.8	OHM	F	1/3W
R1212	ERJ6GEYJ223	M	22K	OHM	J	1/10W
R1213	ERJ6GEYJ123	M	12K	OHM	J	1/10W
R1214	ERJ6ENF3900	M	390	OHM	F	1/10W
R1220	TAJADQ75ROFV	M	75	OHM	F	1/3W
R1221	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1222	ERJ8GCYJ471	M	470	OHM	J	1/8W
R1223	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1230	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1231	ERJ6GEYJ331	M	330	OHM	J	1/10W
R1232	ERJ6GEYJ100	M	10	OHM	J	1/10W
R1233	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1240	ERJ6ENF2260	M	226	OHM	F	1/10W
R1241	ERJ6ENF30R1	M	30.1	OHM	F	1/10W
R1242	ERJ6GEYJ682	M	6.8K	OHM	J	1/10W
R1244	ERJ6ENF1581	M	1.58K	OHM	F	1/10W
R1250	ERJ6ENF1053	M	105K	OHM	F	1/10W
R1252	ERJ6GEYOR00	M	0	OHM		1/10W
R1255	ERDS2TJ471	C	470	OHM	J	1/4W
R1257	ERDS1FJ330	C	33	OHM	J	1/2W
R1261	ERJ6ENF2372	M	23.7K	OHM	F	1/10W
R1262	ERJ6ENF4532	M	45.3K	OHM	F	1/10W
R1265	ERJ6GEYJ221	M	220	OHM	J	1/10W
R1266	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1267	ERDS2TJ224	C	220K	OHM	J	1/4W
R1301	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1302	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1303	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1304	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1320	ERJ6GEYJ101	M	100	OHM	J	1/10W
R1321	ERJ6GEYJ101	M	100	OHM	J	1/10W
R1322	ERJ6GEYJ101	M	100	OHM	J	1/10W
R1325	ERJ6ENF2372	M	23.7K	OHM	F	1/10W
R1326	ERJ6ENF4641	M	4.64K	OHM	F	1/10W
R1327	ERJ6GEYJ470	M	47	OHM	J	1/10W
R1330	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R1331	ERJ6GEYJ683	M	68K	OHM	J	1/10W
R1332	ERJ6GEYOR00	M	0	OHM		1/10W
R1333	ERJ6ENF7501	M	7.5K	OHM	F	1/10W
R1334	ERJ6ENF1002	M	10K	OHM	F	1/10W
R1335	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R1336	ERJ6GEYJ223	M	22K	OHM	J	1/10W

Ref.No.	Part No.		Description			
R1338	ERJ6GEYJ123	M	12K	OHM	J	1/10W
R1339	ERJ6GEYJ183	M	18K	OHM	J	1/10W
R1340	ERJ6GEYJ331	M	330	OHM	J	1/10W
R1341	ERDS1FJ682	C	6.8K	OHM	J	1/2W
R1343	ERQ14AJR47HK	F	0.47	OHM	J	1/4W
R1345	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R1346	ERDS1FJ561	C	560	OHM	J	1/2W
R1347	ERJ6ENF1241	M	1.24K	OHM	F	1/10W
R1348	ERJ6ENF1002	M	10K	OHM	F	1/10W
R1355	ERDS1FJ680	C	68	OHM	J	1/2W
R1360	ERJ6GEYJ222	M	2.2K	OHM	J	1/10W
R1361	ERJ6GEYJ563	M	56K	OHM	J	1/10W
R1362	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R1364	ERJ6ENF6192	M	61.9K	OHM	F	1/10W
R1365	EROS2CKF1004	M	1M	OHM	F	1/4W
R1366	ERJ6GEYJ103	M	10K	OHM	J	1/10W
R1370	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R1371	ERJ6GEYJ682	M	6.8K	OHM	J	1/10W
R1372	ERJ6GEYJ332	M	3.3K	OHM	J	1/10W
R1373	ERJ6GEYJ682	M	6.8K	OHM	J	1/10W
R1374	ERJ6GEYJ153	M	15K	OHM	J	1/10W
R1391	ERDS1FJ125	C	1.2M	OHM	J	1/2W
R1392	ERJ6GEYJ472	M	4.7K	OHM	J	1/10W
R1393	ERJ6GEYJ152	M	1.5K	OHM	J	1/10W
R1394	ERJ6GEYJ392	M	3.9K	OHM	J	1/10W
R1395	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R1396	ERDS1FJ224	C	220K	OHM	J	1/2W
R1401	ERJ6GEYJ330	M	33	OHM	J	1/10W
R1402	ERJ6GEYJ562	M	5.6K	OHM	J	1/10W
R1403	ERJ6GEYJ561	M	560	OHM	J	1/10W
R1404	ERJ6GEYJ182	M	1.8K	OHM	J	1/10W
R1405	ERJ6GEYJ105	M	1M	OHM	J	1/10W
R1412	ERJ6GEYJ101	M	100	OHM	J	1/10W
R1413	ERJ6GEYJ101	M	100	OHM	J	1/10W
R1414	ERJ6GEYJ102	M	1K	OHM	J	1/10W
R1415	ERJ6GEYJ102	M	1K	OHM	J	1/10W

OTHERS

Ref.No.	Part No.	Description
	TESA027	CRT PCB HOLDER
	THEC0159	SCREW(FOR CRT PCB HOLDER)
	THE902N	D-SUB SCREW
	THTF001	SCREW(FOR IC/TR/D)
	TMKK027	DOUBLE FACE TAPE
⚠	TMMK030	INSULATION TUBE
⚠	TMM81417-1	CORD BAND (BIG)
	TSC8908-0	FERRITE CORE
	TSXF134	PHONO PIN CABLE(GREY)
	TSXF135	PHONO PIN CABLE(RED)
	TSXF136	PHONO PIN CABLE(BLUE)
	TUCC5095-1	AC SOCKET BRACKET
	TUCC5270	SHIELD CASE(CRT PCB)
	TUCC5271	SHIELD PLATE(CRT PCB)
	TUWF034	BNC TERMINAL BRACKET
	XTV3+10J	SCREW
	XYE3+EJ10	SCREW
⚠ CL1	TMM85490	LEAD CLAMPER
CL2	TUXX104	WIRE CLIP
⚠ F801	XBA2C50TB15L	FUSE(5.0A)
F851	TSFX37A632	FUSE(6.3A)
FG1	TJC85341	EARTH LUG
FG2	TJC85341	EARTH LUG
FG3	TJC85341	EARTH LUG

Ref.No.	Part No.	Description	Ref.No.	Part No.	Description
FG4	TJC85341	EARTH LUG	S1151	TAGDSP141T	SPARK GAP
FG5	TJC85341	EARTH LUG	S1251	TAGDSP141T	SPARK GAP
FG6	TJC85341	EARTH LUG	S1351	TAGDSP141T	SPARK GAP
FG7	TJC85341	EARTH LUG	S1355	TAGDSP201MF	SPARK GAP
FG8	TJC85341	EARTH LUG	S1371	TAGA0005	SPARK GAP
FG9	TJC85341	EARTH LUG	⚠ SW801	ESB91274A	SWITCH(POWER)
FG10	TJC85341	EARTH LUG	SW991	EVQ33405R	SWITCH
FG11	TJC85341	EARTH LUG	SW992	EVQ33405R	SWITCH
FG101	TJC85341	EARTH LUG	SW993	EVQ33405R	SWITCH
FG102	TJC85341	EARTH LUG	SW994	EVQ33405R	SWITCH
FG103	TJC85341	EARTH LUG	TH801	ERTB6SFL100P	THERMISTOR
FS801	TJC85502T	FUSE HOLDER	⚠ TH901	TAP108M7R0	POSISTOR
FS802	TJC85502T	FUSE HOLDER	TP5	TEL302-9	TERMINAL
⚠ N11	EMCS0464M	4P CONNECTOR	X101	TAAA0005	CRYSTAL OSCILLATOR
⚠ N12-	TSXX082	2P/3P CONNECTOR ASSY			
⚠ N22A	TJSF07805	5P CONNECTOR			
⚠ N22B	TJSF16305	5P CONNECTOR			
⚠ N100A	TJSF07820	20P CONNECTOR			
⚠ N100B	TJSF16320	20P CONNECTOR(L-TYPE)			
⚠ N101	TJS118590	2P CONNECTOR			
⚠ N150A	TJSF08012	12P CONNECTOR			
⚠ N150B	TJSF07912	12P CONNECTOR(L-TYPE)			
⚠ N231	TJSF10400	BNC TERMINAL			
⚠ N232	TJSF10400	BNC TERMINAL			
N490	TJEA022	HEAT SINK TERMINAL			
N651	TJC85342T	LUG TERMINAL			
N652	TJCD003	TERMINAL			
⚠ N801	TJS8A9361	AC SOCKET			
⚠ N861	EMCS0264M	2P CONNECTOR			
N891	TEL302-9	TERMINAL			
N893	TEL302-9	TERMINAL			
⚠ N903	EMCS0451ML	4P CONNECTOR(L-TYPE)			
⚠ N1001	TJSF10400	BNC TERMINAL			
N1002A	TJS8A4291	PHONO PIN CONNECTOR			
N1002B	TJS8A4291	PHONO PIN CONNECTOR			
⚠ N1004	TJSC00600	CRT SOCKET			
N1005	TJC85342T	LUG TERMINAL			
N1006	TJCD003	TERMINAL			
⚠ N1007-	TSXX054	1P/2P CONNECTOR ASSY			
⚠ N1011	TJSF26615	15P CONNECTOR(D-SUB)			
⚠ N1015A	TJSF09554	54P CONNECTOR			
⚠ N1101	TJSF10400	BNC TERMINAL			
N1102A	TJS8A4291	PHONO PIN CONNECTOR			
N1102B	TJS8A4291	PHONO PIN CONNECTOR			
⚠ N1201	TJSF10400	BNC TERMINAL			
N1202A	TJS8A4291	PHONO PIN CONNECTOR			
N1202B	TJS8A4291	PHONO PIN CONNECTOR			
N510-1	TEL302-9	TERMINAL			
N510-2	TEL302-9	TERMINAL			
N510-3	TEL302-9	TERMINAL			
N510-4	TEL302-9	TERMINAL			
N901-1	TEL302-9	TERMINAL			
N901-2	TEL302-9	TERMINAL			
⚠ PC821	ON3171	PHOTO COUPLER			
⚠ PC822	ON3171	PHOTO COUPLER			
⚠ PC823	HCNW4504	PHOTO COUPLER			
Q16	UN11004	IC PROTECTOR(0.4A)			
RL571	TSEH0012	RELAY			
⚠ RL901	TSEH0010	RELAY			
S371	TAGA0005	SPARK GAP			
S671	TAGDSP141T	SPARK GAP			
S1051	TAGDSP141T	SPARK GAP			